Family Influences on Adolescent Alcohol Use

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Declaration

I declare that:

a.) this thesis has been written by me

b.) this work is entirely my own

c.) this work has not been submitted for any other degree or professional qualification.

Diana Gossrau-Breen

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Abstract of Thesis

The thesis explores influences of the alcohol-specific (e.g. alcohol use, attitudes) and non-alcohol-specific (e.g. relationship quality) family environment on similarity and differences in adolescent siblings' alcohol use. Previous research has shown the importance of siblings for adolescent adjustment (Plomin & Daniels, 1987; Rowe & Gulley, 1992). However, research exploring family influences on siblings' alcohol use is scarce in the UK. Using a variety of theoretical perspectives, this thesis attempts to make a comprehensive account of family influence. Social learning principles (Bandura, 1977) such as modelling-imitation and reinforcement (via attitudes, norms) are considered as alcohol-specific mechanisms within families, accounting for similarity in parent-child dyads and sibling pairs. Regarding the influence of the non-alcohol-specific family environment, it is drawn on family systems theory (Minuchin, 1985), stresses and strains on parenting, and differential parenting approaches. This explores interrelations between marital, parent-child, and sibling relationships, and adolescent alcohol use (Hetherington et al., 1999) within which models of siblings' differential intrafamilial experiences are integrated. Particular attention is given to the role of gender throughout this thesis.

The study reported here used a cross-sectional design. It included 116 intact families, applying a multiple informant approach. During home visits, each parent and two siblings (younger siblings: 11-15 years, older siblings: 14-19 years) completed standardised questionnaires on demographics, alcohol/substance use, attitudes, family relationships, and other aspects of adolescents' life, combining self-reports and perceptions of others. The analysis is divided into three results sections and employs a variety of statistical methods (descriptive statistics, correlational and regression analyses, analysis of variance).

Descriptive results (Chapter 5) of the level of family members' alcohol/substance use indicate that both parental and adolescents' use was lower than national surveys suggest. Differences in individual family members' self-reports and perceptions of the family environment support the use of self-reports of alcohol use and repeated analysis employing parent and child reports of family relationships.

Findings on the alcohol-specific environment (Chapter 6) confirmed social learning processes. Male adolescents' alcohol use was related to parental and brothers' modelling, with parental norms being influential for older males' consumption. No such associations emerged for females regarding their parents or sisters. Older siblings' supply of alcohol was significantly associated with younger siblings' (excessive) alcohol use, but only among same-sex siblings. Neither parental alcohol norms nor perceived sanctions of adolescent alcohol use varied as a function of sibling gender similarity, but same-sex siblings experienced stricter parental alcohol norms than mixed-sex pairs.

In relation to the non-alcohol-specific family environment (Chapter 7), parental alcohol use showed few disruptive effects on parenting behaviour. Marital quality affected the parent-child relationships of both siblings which in turn predicted sibling relationship quality, suggesting congruence in the quality among these family subsystems. Parenting toward each adolescent influenced this child's alcohol involvement. Younger adolescents showed lower alcohol use when their older sibling was exposed to marital discord. Generally, receiving the more favourable treatment relative to one's sibling resulted in lower alcohol involvement relative to this sibling. Sibling gender similarity moderated the siblings' level of monitoring and associations within the difference score models.

Overall, the findings demonstrate the importance of the wider family environment for siblings' alcohol use and the role of gender in processes of social influence. Both parents and siblings provide opportunities for social learning of alcohol use. Child-specific experiences were the best predictors of adolescent alcohol use. However, the similarity in the climate of various family relationships reflects the importance of shared, family-level influences. Implications for alcohol education and prevention and recommendations for further research are discussed.

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CHAPTER 1

ADOLESCENT ALCOHOL USE AND THE FAMILY

1.1. Introduction to this Thesis

Currently there is a high degree of public and policy concern over adolescent alcohol use. British teenagers are among the heaviest consumers of alcohol in Europe (Currie et al., 2004; Hibell et al., 2001). Their excessive drinking behaviour is related to a wide range of adverse consequences including, among others, physical sickness, missing school, and unprotected sex. These consequences impact on young people's health and accomplishment of developmental tasks. May (1992) observed that alcohol use is not only "a problem *for* young people, but also a problem *of* young people" (p. 109). His observation appears as valid now as over a decade ago and is reflected in the development of strategies and policies tackling excessive drinking among youth and other population groups in the UK (Cabinet Office, The Prime Minister's Strategy Unit, 2004; Dept. for Culture, Media & Sport, Home Office & Office of the Deputy Prime Minister, 2005; DHSSPSNI, 2000; NI Executive, 2001; Scottish Executive, 2002; Waller, Naidoo, & Thom, 2002). For example, the Scottish Executive (2002) set the reduction of harmful drinking among young people as a priority in their "Plan for Action on Alcohol Problems". To influence drinking behaviour among young people through alcohol education and prevention programmes, it is essential to understand contributing factors. Among the many factors is the family environment (Hawkins, Catalano, & Miller, 1992; Petraitis, Flay, & Miller, 1995) which represents the primary socialisation context for children.

Factors of the family context can be divided into two broad areas that influence adolescent alcohol use: alcohol-specific and non-alcohol-specific aspects of the family environment. *Alcohol-specific* factors refer to direct alcohol-related behaviours and attitudes such as alcohol use, provision of alcohol, attitudes, norms and sanctions regarding drinking behaviour. Studies investigating these factors generally relate to *social learning* principles to explain the association between these aspects of the family environment and adolescent alcohol use. Traditionally the focus has been from parent to child but more recent American research postulates the importance of siblings for young people's drinking behaviour. It has even been suggested that social learning of alcohol use functions as an underlying mechanism that

accounts for family similarity in alcohol use (Duncan, Duncan, & Hops, 1998). However, little is known whether parental alcohol use and attitudes are of similar importance for different children within the same family. Moreover, so far there has been no published research on sibling effects on adolescent alcohol use within the British cultural context.

The second area, *non-alcohol-specific* factors, relates to general features of the family environment. A diversity of concepts and foci in research have been used, varying from broad family level measures such as family cohesion/climate to the quality of individual family relationships such as parent-child conflict. Although the last decade of adolescent research saw growing exploration of the wider family system in relation to adolescent adjustment (Steinberg & Morris, 2001), adolescent alcohol use has rarely been examined from such a perspective. A different line of research, mainly driven by behaviour-genetic investigations, claims that children growing up in the same family are rather dissimilar in personality and behaviour (including alcohol use) (Hetherington, Reiss, & Plomin, 1994). They further argue that the dissimilarity results from siblings' nonshared (i.e. unique) experiences within the family context. Sibling differences within the family environment in relation to a wide range of measures of adolescent adjustment and psychopathology have been established in American research. Despite these advances, the lack of research on family contexts inclusive of siblings in relation to adolescent alcohol use continues.

This thesis aims to explore adolescent alcohol use in relation to the family context, an area where British research has been scant. In the UK, the focus of alcohol research has largely been on the peer context and has often downplayed the family's role. However, families influence adolescent alcohol use through alcohol-specific and non-alcohol-specific aspects of the family environment (Hawkins et al., 1992; Petraitis et al., 1995). Existing evidence is based largely on between-family research and to date little is known regarding factors that may differentially affect the drinking behaviour of individual siblings within the same family. To compensate for these gaps in the literature, a within-family perspective in relation to adolescent alcohol use is employed. The thesis has two major aims.

The first aim of this thesis is to examine how alcohol-specific factors in the family environment relate to adolescent alcohol use. Social learning principles are employed to explore the

importance of parental alcohol use and parental attitudes towards alcohol use as models or influences on each sibling's drinking behaviour. In addition, older siblings are considered as a further source of social learning of alcohol use among younger siblings. A unique contribution of the research described in this thesis concerns the focus on two children per family and sibling effects on adolescent alcohol use. Several additional factors are explored that may influence the emergence of family members' similarity in alcohol use: parent-child gender, sibling demographics, and siblings' interaction with one another. The available evidence in relation to this aim is reviewed in Chapter 2; the investigation of these associations is reported in chapter 6.

The second aim of this thesis is to explore non-alcohol-specific family factors in relation to adolescent alcohol use. Previous research on the role of the family in adolescent alcohol use has often focused solely on the parent-child relationship or on general concepts of family functioning by examining differences between families. This thesis will include measures of a variety of family relationships (i.e. marital, parent-child, and sibling relationships) in an antecedent-consequence model. Thus, the influence of the parent-child relationship on adolescent alcohol use is explored in its interrelation with the marital subsystem and the sibling subsystem. Furthermore, differences in the within-family environment of siblings are related to siblings' alcohol use. The contribution of this approach is twofold. First, it will demonstrate that factors identified between families also matter for siblings' alcohol use within families. Secondly, it will provide further detail on the complexity of intrafamilial influence which has already been identified as influential in relation to other types of adolescent psychopathology and adjustment (e.g. Hetherington, Henderson, & Reiss, 1999). Chapter 3 provides an overview of the literature which supports these associations; the examination of the proposed relationships is presented in Chapter 7.

The remainder of this chapter will return with more detail to the different issues discussed in this introduction. It briefly introduces adolescence as a transitional period. Adolescent alcohol use is then discussed in terms of key characteristics and associated behaviours, illustrated with current British data. This is followed by a brief overview of predictors of adolescent alcohol use. Attention focuses then on the family context since it is considered the central influence on young people's drinking in this thesis. First, an overview of previous approaches to the family environment is provided, resulting in a definition of the family context used in this thesis.

Thereafter, theoretical approaches, concepts, and debates regarding the alcohol-specific and non-alcohol-specific family environment are introduced. The chapter concludes with a summary and outline of this thesis.

1.2. Adolescent Development

Adolescent development is characterised by notable physical, social, emotional, cognitive, and behaviour changes (for reviews see Coleman & Hendry, 1999; Feldman & Elliott, 1990; Simpson, 2001; Steinberg & Morris, 2001). Developmental tasks in adolescence include: gaining autonomy from parents; development of new and mature relationships with peers in terms of friendships and sexual relations; adoption of gender typical behaviour; and identity development (e.g. Havighurst, 1982). These various specific transitions are, however, not tackled simultaneously. Rather, during different points in time across adolescence, different issues appear to be prominent for the young person (e.g. Focal model, Coleman, 1974; in Coleman & Hendry, 1999). According to Steinberg (1993), three periods of adolescence can be distinguished: early (11-14 years), mid (15-18 years), and late (18-21 years). These periods are based on biological processes and prescriptions of the educational system.

To understand adolescent development it is essential to briefly introduce some general concepts of human development. Central here is the developing individual's embeddedness in a variety of contexts. A useful approach to understanding these contexts is offered by Bronfenbrenner's *ecosystems theory* (1986). Ecosystems theory suggests that the environment is made up of nested systems. At the most proximal level to the individual this includes contexts (i.e. *microsystems*) the individual actively participates in such as the family, peer group, and school. The family thereby represents the primary microsystem the individual has been exposed to and interacted with. Further levels refer to the *mesosystem* (i.e. the interrelation of microsystems); the *exosystem*, equalling influences external to the adolescent's microsystems; and the *macrosystem* (i.e. the overarching societal and cultural blueprint including its customs and legislation such as drinking laws, drinking culture). According to ecological/contextual perspectives, development can only be understood on the basis of reciprocal interactions of the individual with his/her environment (organism-context relation) (Bronfenbrenner, 1986; Lerner, 1995, 1996). Moreover, in his/her development the individual functions as an active agent,

shaping and creating the environment (Scarr, 1992; Scarr & McCartney, 1983; Silbereisen & Eyferth, 1986).

Based on such concepts as organism-context relations and adolescent agency, adolescent transitions present also a challenge for the microsystems of the young person. The family context is particularly important here. The different adolescent transitions (e.g. gaining autonomy) render existing interaction patterns among family members inadequate, thus requiring redefinition of parent-adolescent relationships (Minuchin, 1985; Steinberg, 1990; Steinberg & Morris, 2001). The strain experienced by families during adolescence (Dekovič, 1999; Steinberg, 2002) may impose a risk for the emergence of problematic adolescent behaviour (e.g. through hostile-coercive interaction; see section 1.6 for further discussion). Consequently, the family context provides a worthwhile research focus during adolescence.

Adolescence is not only the period when the developing individual acquires characteristics and competencies to fulfil and cope with tasks, roles, and status associated with adulthood, but also the time when most young people initiate alcohol use. Thus, several researchers (Davies & Stacey, 1972; Foxcroft & Lowe, 1991; May, 1992; Plant & Plant, 2001) over decades have viewed adolescent alcohol use as part of an anticipatory socialisation process and therefore a conventional rather than deviant behaviour.

> ... *young people have to move from a childhood culture, which at the start, is abstinent, into an adult culture with a drinking norm. This is a gradual process, and some type of anticipatory socialisation involving alcohol is therefore to be expected* (Davies & Stacey, 1972, p. 77).

Young people in Western societies today are faced with what has been described as a 'maturity gap' (Moffitt, 1993). The 'maturity gap' is understood as the widened discrepancy of earlier biological maturation and delayed achievement of social, independent adult status through prolonged periods of education and delayed entry in the labour market (Coleman, 2002; Coleman & Hendry, 1999). Experimental and moderate alcohol consumption by the majority of young people can therefore be considered as functional behaviour in terms of a demonstrative acquisition of adult status and thus as coping with the 'maturity gap' (Maggs, 1997; Silbereisen, 1997; Silbereisen & Noack, 1988). For example, the earlier and increased substance use

involvement among early maturing girls and early- and late-maturing boys could just be interpreted as such an adaptation of their psychosocial development to their biological maturation (Alsaker, 1995, 1996; Kracke & Silbereisen, 1994; Stattin & Magnusson, 1990). Indeed, experimental use of substances has been related to good psychological adjustment (Shedler & Block, 1990).

In contrast, some young people engage in certain forms of drinking behaviour which puts them at considerable risk (e.g. Plant & Plant, 2001). Harmful and excessive alcohol use among young people is associated with a variety of adverse consequences and health problems. These include black-outs, attempted suicide, sexually transmitted infections, unintended pregnancy, academic failure, violence and fatal and non-fatal injury (see Gmel, Rehm & Kuntsche, 2003; Hingson, Heeren, Zakocs, Kopstein, & Wechsler, 2002; Perkins, 2002, for reviews). In these cases their drinking behaviour significantly impacts on their developmental pathways (e.g. missed educational opportunities due to academic failure or when a teenage parent; e.g. see review in Swann, Bowe, McCormick & Kosmin, 2003) and psychosocial adjustment (e.g. Wells, Horwood & Fergusson, 2004).

This brief introduction into adolescent development, which has highlighted only key issues, supports the conclusion that alcohol use by the majority of young people can be understood as part of normative development. The next step involves a closer examination of the nature of adolescent drinking behaviour itself. The following section considers the cultural context, the development of adolescent alcohol use, its consequences and correlates. These aspects are illustrated with recent British, especially Scottish, data. Finally, approaches in predicting adolescent alcohol use are discussed, concluding in an argument for researching the family context of alcohol use.

1.3. Adolescent Alcohol Use

Alcohol is part of the British culture and widely used by the majority of adults and younger people to increase the pleasure of social events and celebrations. Thus it is no surprise that many youngsters are given their first taste of alcohol by their parents during adolescence, or even during childhood (Barnard & Forsyth, 1998; Davies & Stacey, 1972; see Sharp & Lowe, 1989 for a summary). Despite these customary behaviours a closer look at legal and cultural

issues regarding alcohol consumption in the UK relative to the situation in the USA needs to be taken. US research on adolescent alcohol use serves as a key reference in this thesis but the significant differences in the cultural context of the two countries may impact on the more immediate contexts of young people (e.g. family).

British law permits a child from the age of five to be given small amounts of alcohol. Young people over the age of 16 may consume certain alcoholic beverages in a restaurant. However, purchasing alcohol is only legal from age 18. Overall, this provides young people in the UK with a very different context than their American counterparts for whom alcohol use is an illegal activity until the age of 21 in most states. Sharp and Lowe (1989) stress that since the two countries do not share the same legal or educational systems as well as have a different history (e.g. American Prohibition), UK and US adolescents experience different drinking cultures.

Despite the quasi-legal position of youthful alcohol consumption in the UK and its perceived normativity (see Foxcroft & Lowe, 1991; Sharp & Lowe, 1989), adolescent drinking can be considered as problem behaviour if it violates cultural norms and impairs an individual's ability to function adequately. Within the UK there is great concern around the harmful drinking by children and young people, accompanied by a demand to reduce these harmful levels (e.g. Cabinet Office, The Prime Minister's Strategy Unit, 2004; DHSSPSNI, 2000; Scottish Executive, 2002). This concern is fuelled by two trends of alcohol use among adolescents. First, at national level, increases in alcohol use among young people have repeatedly been reported, relating to average amount drunk by those consuming alcohol and frequency of drinking (see Goddard, Plant, Plant, Davidson, & Garretsen, 2000 for summary; also Boreham & Shaw, 2001; Currie, Fairgrieve, Akhtar & Currie, 2003). Second, British teenagers have a record of being among the heaviest consumers of alcohol in Europe (Currie et al., 2004; Currie, Hurrelmann, Settertobulte, Smith, & Todd, 2000; Hibell et al., 1997, 2001).

Two large repeated European/international surveys provide the comparative evidence. The first is the European School Survey Project on Alcohol and Other Drugs (ESPAD). ESPAD involved 15-16 year olds in a comparison of 23 countries in 1995 and 30 countries in 1999, (Hibell et al., 1997, 2001). The second is the Health Behaviours in School-aged Children (HBSC) study investigated 11-, 13-, and 15-year olds, with the two last surveys having been

carried out in 1997/1998 and 2001/2002 (Currie et al., 2000; 2004). Both surveys converged in the findings that British teenagers report high levels of periodic heavy drinking, intoxication, and adverse consequences of their alcohol consumption (Currie et al., 2000, 2004; Hibell et al., 1997, 2001; Plant, 1999). Further support comes from a cross-national comparison of 12-, 14-, and 16-year olds, where Scottish youngsters emerged as drinking the most in comparison to their Norwegian and Swedish counterparts (Kloep, Hendry, Ingebrigtsen, Glendinning, & Espnes, 2001).

In addition to comparative data, these studies also provide information on other aspects of the national pattern of adolescent alcohol use. They are presented in relation to general issues of youthful drinking such as age trends, gender differences, problematic drinking and its consequences, contexts and correlates of use. Wherever possible, evidence from smaller national/regional studies is included. Many prevalences refer to the time period relevant for this thesis (data collection 2000-2001; see also Chapters 4 and 5), although more updated reports are also discussed.

1.3.1. Characteristics of Adolescent Alcohol Use

In general, initiation of alcohol use and increases in drinking behaviour follow an age-gradient (Barnard, Forsyth & McKeganey, 1996; Davies & Stacey, 1972; Fillmore et al., 1988; Forsyth, Barnard, Reid & McKeganey, 1998; Plant & Plant, 1992). A meta-analysis of more than 20 longitudinal studies (Fillmore et al., 1988) showed that drinking frequency increases rapidly during adolescence but is followed by a reduction in early adulthood. A similar course has been reported for quantity of use but with a less pronounced decrease. The time window of most excessive use appears to be in late adolescence (Kandel & Logan, 1984; see also Coleman & Hendry, 1999; Plant, Miller, Thornton, & Plant, 1999). Both continuity and discontinuity in heavy drinking during the transition into adulthood have been reported (Bachman, Wadsworth, O'Malley, Schulenberg & Johnson, 1997; Bonomo, Bowes, Coffey, Carlin & Patton 2004; Jefferis, Power & Manor, 2005; Jessor, 1984; Labouvie, 1996; Wells et al., 2004; for a discussion see Schulenberg & Maggs, 2002). Moreover, for the majority of young people the experience of alcohol-related problems is of a relatively transitory nature (Steinberg & Morris, 2001). However, a decrease in risk behaviours in young adulthood among adolescent risk-takers may depend on their psychosocial resources (Maggs, Fromme, Eccles, & Barber, 1997).

For example, *age-related increases* become evident in the HBSC data on initiation by successive age cohorts (Currie et al., 2000[1]; see also Forsyth et al., 1998). Whereas among Scottish 11-year olds 14% of males and 16% of females reported never having had a drink, these proportions decreased for the 13-year olds to 5% and 6%, respectively. By mid-adolescence almost all youngsters had consumed alcohol: 98% of 15-year olds in HBSC and 94% of 15-16 year olds in the 1999 ESPAD (Hibell et al., 2001). For the majority of adolescents consuming alcohol, drinking is infrequent and of low to moderate quantity during early adolescence (Goddard et al., 2000). By 15/16 years of age it becomes a more frequent and established activity. Three quarters of ESPAD participants reported drinking alcohol during the last 30 days (Hibell et al., 2001). At least weekly alcohol consumption was reported by 42.0% of female and 44.3% of male 15-year olds in Scotland (HBSC: Currie et al., 2004).

Existing evidence further suggests *gender differences* in drinking behaviour (Sharp & Lowe, 1989). Whereas some still report that male adolescents drink on average more frequently and more excessively than female adolescents (Goddard et al., 2000; Rodham, Hawton, Evans & Weatherall, 2005), other studies indicate that girls have been catching up with their male counterparts (Alexander, Currie, Todd, & Smith, 2004; Kloep et al., 2001; Todd, Currie & Smith, 1999). However, in regard to beverage preference gender differences appear to persist, with more males than females consuming beer, but a higher proportion of females than males drinking wine or spirits (Currie et al., 2000, 2003, 2004; Hibell et al., 2001; Pavis, Cunningham-Burley, & Amos, 1997).

Not all young people drink in a uniform way nor does their alcohol use affect them similarly. Several forms of alcohol use in adolescence have been discussed in the literature, each with its specific implication for the young person's adjustment. Silbereisen, Robins, and Rutter (1995) distinguished between four forms of use. *Experimental* use was defined as occasional and in small amounts, therefore not causing impairments, independent of its duration. *Regular* use or heavy consumption does not cause problems. However, it puts the person at risk of developing health and social problems. In contrast, *problem* use causes occasional difficulties which are

[1] In Currie et al. (2004; HBSC 2002) no information on who had or had not initiated alcohol use was provided.

still under the control of the consumer. This control is lost in the case of *dependence* for which diagnostic criteria of the DSM-IV (APA, 1994) and ICD-10 (WHO, 1992) apply (e.g. tolerance, craving, withdrawal symptoms). Silbereisen (1997) acknowledged that the transition between use and misuse is continuous and depends on how criteria are set. Problems due to misuse become evident in the negative physiological and psychological effects of the psychoactive substance alcohol (e.g. impaired self-assessment), but also as consequences for people and property (e.g. violence). Furthermore, assessing misuse depends on characteristics of the person using alcohol (e.g. developmental stage), and the living conditions (e.g. missing school) (Newcomb & Bentler, 1989).

Despite many young people using alcohol in a sensible way (e.g. May, 1992), a considerable number of adolescents report *excessive drinking* behaviour and *alcohol-related adverse consequences*. Drunkenness becomes an increasingly common experience with age. Whereas only 6.3% of male and 3.2% of female Scottish 11-year olds reported having been drunk twice or more often, these proportions increased to 19% and 21.3% for 13-year olds and 51.9% and 51.8% for 15-year olds, respectively (Currie et al., 2004). Again, by mid-adolescence, drunkenness has been experienced by the majority of British young people (82%), with half of 15/16-years olds reporting its occurrence during the last 30 days (Hibell et al., 2001). As a result of such drinking excesses, a diverse variety of adverse consequences have been reported. They range from temporary memory loss, being sick from drink, involvement in arguments, fights and trouble with parents, missing school due to being to ill, and engaging in sex (regretted, unprotected) (Anderson et al., 1996; Hibell et al., 2001; Leven, 2001). Thus, the understandable concern around excessive youthful alcohol consumption is well captured in the following quote by Sharp and Lowe (1989):

> *Drinking per se is not as worrying as the amount of drunkenness and consequent problems. Children may get drunk as part of learning how to drink sensibly. However, if their sole reason for drinking is to get drunk, then young people may be heading towards both social and physical problems* (p. 305).

Furthermore, the way young people drink seems to be related to the context. Sharp and Lowe (1989) reviewed British epidemiological and psychological studies of adolescent alcohol use and found that most young people drink at home under parental supervision. After the age of

15, drinking tends to occur in places other than the home, moving more into the public sphere (see May, 1992; Sharp & Lowe, 1989). For example, among 15-16 year olds in the UK, 33% of males and 27% of females had their last drink at their parents' home and another 32% and 40%, respectively, in a pub/bar or disco (Hibell et al., 2001). Whereas younger adolescents drank more often with their parents than their friends, this relation was reversed among older age groups (Kloep et al., 2001). Currie et al. (2003) also reported that the parental home was the most frequently mentioned location among 13 year olds (42%) but outdoor locations among 15 year olds (boys 35%, girls 35%) and parties (boys 31%, girls 40%). This change in drinking location coincides with a change in drinking behaviour towards increased and more excessive consumption. Support also comes from a survey with schoolchildren in Perth and Kinross which shows that both the family home and outdoor/hidden locations are drinking places (Forsyth & Barnard, 2000). However, the latter, despite being less frequently used, was associated with the consumption of stronger alcohol and much higher rates of drunkenness (see also Coleman, 2004). The evidence suggests in general that alcohol consumption under parental supervision is more moderate and sensible (Sharp & Lowe, 1989).

In addition, adolescent alcohol use, particularly excessive use, has been related to other behaviours which are potentially damaging to the developing individual. Adolescents who drink heavily are more likely to use tobacco and illicit drugs, to become involved in precocious and unsafe sexual activity, and delinquency (e.g. problem behaviour syndrome: Jessor & Jessor, 1977; see also: Anderson, Plant & Plant, 1997; Boreham & Shaw, 2001; Currie et al., 2003; Duncan, Duncan, & Strycker, 2000; Farrell, Danish, & Howard, 1992; Plant & Plant, 1992; Wells et al., 2004). Increased adolescent alcohol use has also been related to poor school performance and truancy (Currie et al., 2003; Hawkins et al., 1992; Miller & Plant, 1999). Thus, concern surrounds age-inappropriate and excessive alcohol use. Particularly its joint occurrence with deviant and risk-taking behaviour may put young people at risk for later alcohol abuse, current and later health problems, truncated educational pathways and its consequences, and deviant trajectories. These concerns are prominent in both the British and the American context.

To summarise, the majority of British adolescents use alcohol carefully in an experimental way, mainly to socialise. During early adolescence, alcohol consumption tends to be low and occurs

largely under parental supervision. From age 15 on, drinking behaviour becomes more established through increases in frequency and quantity, accompanied by a move away from familial settings. A substantial number of young people engage in problematic drinking patterns, some of them in conjunction with other potentially risky or health-damaging behaviours. Despite its normativity, adolescent drinking behaviour may impose a risk for health, educational attainment, and adjustment. Based on the vulnerability of these age groups and the recent trends in alcohol consumption among adolescents, this thesis will focus on alcohol use among young people in early and mid-adolescence. However, the focus remains on adolescent alcohol use in a community sample rather than on alcohol abuse or high-risk populations. Detail on the level of alcohol use among participants of the present study in comparison to the British surveys discussed here is presented in Chapter 5.

In addition to describing adolescent alcohol use and its consequences, attempts have always been made in explaining its development. Knowledge of contributing factors helps to understand the emergence, maintenance and acceleration of young people's drinking behaviour. It also provides the basis for identifying where intervention efforts may be effective to prevent certain undesirable developments. Congruent with the aims of this thesis, effort has been made to identify research on the family context as a key socialisation setting in relation to adolescent alcohol use.

1.3.2. Influences on Adolescent Alcohol Use

A multitude of factors have been related to adolescents' use of alcohol and other substances (for extensive reviews on theories and empirical evidence see Hawkins et al., 1992; Petraitis et al., 1995). According to Petraitis et al. (1995) these factors and constructs can be organised into three distinct types of influence: intrapersonal (e.g. self-esteem, impulsivity), social/interpersonal (e.g. alcohol-specific attitudes by role models, parental warmth), and cultural/attitudinal (e.g. media depictions of alcohol use, hedonistic values). However, with the strong focus of this thesis on *social/interpersonal* influences, the other types of influence are not considered here.

In relation to social influence, two socialisation agents have received the greatest attention: *peers* and the *family* environment. Both contexts have often been perceived as competitors in

social influence. One group of researchers has postulated the salience of peers over family influence (Harris, 1995; Rowe, 1994) which in turn has been challenged by many other researchers (e.g. Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; Hoffman, 1991; Kandel, 1996). This debate over the greater salience of peer influence is not restricted to adolescent alcohol/substance use and concerns almost every area of child and adolescent development. Therefore, the following four reasons justify why this thesis will focus entirely on family influences. These reasons are drawn from both alcohol-related and general developmental research evidence.

First, Kandel (1996) and Rowe, Wolbroun, and Gulley (1994) judged that many peer-influence studies are methodologically flawed and overestimate peer influence (e.g. confounding peer selection and socialisation processes in cross-sectional research). Secondly, several researchers emphasised that parental influence, which generally starts operating at an earlier age than peer influence, exerts effects on the developing adolescent in its own right, contributes to peer selection and moderates peer influence (Bronfenbrenner, 1986; Collins et al., 2000; Foxcroft & Lowe, 1991; Kandel, 1996; Kandel & Andrews, 1987; Mounts, 2005; Wood, Read, Mitchell & Brand, 2004). Third, further support for the role of family processes is provided by the effectiveness of family-focused interventions for the prevention of alcohol misuse among young people (Foxcroft, Ireland, Lister-Sharp, Lowe, & Breen, 2002, 2003; Kumpfer & Alvarado, 2003; Lochman & van den Steenhoven, 2002).

Finally, and most importantly, within the UK there has been an over-emphasis on peer influence (i.e. 'peer pressure': e.g. Pavis et al., 1997) by neglecting family-focused research in relation to normative alcohol use. Even alcohol education and prevention approaches rely largely on 'peer pressure' models although the evidence base and programme effectiveness are dissatisfying (see Coggans & Watson, 1995; Foxcroft & Lowe, 1997 for discussion). In fact, there seems to be some reservation among British researchers about relating adolescent alcohol use to parental behaviours (see Sharp & Lowe, 1989). Still, others argue strongly for the usefulness of considering the family context (Foxcroft, 1996; Foxcroft & Lowe, 1991). Furthermore, the rather scant British evidence on family influences on adolescent alcohol use is restricted to adolescents' perceptions of the family environment (e.g. perceived parental attitudes, perceived parental warmth) and dyads of parent and child (Foxcroft & Lowe, 1995, 1997; Shucksmith,

Glendinning, & Hendry, 1997). Taken together, these arguments demonstrate the need for a more comprehensive examination of the family context. Thus, without denying peer influences, this thesis focuses exclusively on the family environment in relation to adolescent alcohol use. The following section will further explore general approaches to family influence in relation to adolescent alcohol use.

1.4. Adolescent Alcohol Use in the Family Context

Research on family influences on adolescent alcohol use has been longstanding. Aspects of the family environment and level/unit of examination vary widely between studies. Central themes have generally been the transmission of parental alcohol misuse to offspring and the effects of deficits in the family environment (Plant, Orford, & Grant, 1989; Orford & Velleman, 1995; Velleman, 1992; Velleman & Orford, 1993a; 1999). Three approaches to the family environment emerged frequently. The first approach concerns *socio-demographic factors*, usually family structure/intactness. However, these factors are considered as less important and less useful because they provide no information on the actual family environment and how this affects the child ('social address models': Bronfenbrenner & Crouter, 1983; see Foxcroft & Lowe, 1991, 1997 for discussion; also McFralane, Bellissimo, & Norman, 1995; Shucksmith et al., 1997). Therefore, socio-demographic factors are not considered independently in this thesis.

The other two approaches consider *psychosocial factors* of the family environment. Both approaches have traditionally focused on one child per family only, but differ in the level of analysis. One group of investigations focuses on the *dyad of parent and child* which are compared across families in relation to a diverse range of measures. For example, young people's drinking behaviour has been related to parental alcohol use and parenting, (see Foxcroft & Lowe, 1991; Hawkins et al, 1992 for reviews). The other group of investigations focuses on the *family level* and relies on broad measures of the family environment such as general family functioning, family (dis)harmony, family social support, and family conflict in predicting adolescent alcohol use (Clark, Neighbors, Lesnick, Lynch, & Donovan, 1998; Mason & Windle, 2001; Velleman & Orford, 1993a). Although both approaches have their strength in providing useful information on either the dyadic level or an overall family level, they appear reductionist in other ways.

The first approach, with focus on the parent-child dyad, neglects other dyads and units within the family. Children interact not only with their parents but also with their siblings. Recent research has shown that siblings provide a direct influence on adolescent alcohol use (e.g. Ary, Tildesley, Hops, & Andrews, 1993; Rowe & Gulley, 1992; to be further discussed in Chapter 2). In addition, the rearing environment of a sibling seems to influence adolescent adjustment (e.g. Reiss et al., 1995; to be further discussed in Chapter 3).

In contrast, the second approach, focusing on the family level, ignores the specificity of individual family subsystems. This approach averages out the specific role of different family relationships. Children's relationships with mother and father differ (e.g. Lamb & Lewis, 2004; Phoenix & Frosh, 2002; Russell & Saebel, 1997; Siegal, 1987). Similarly, adolescents' relationships with mother and father or either parent's alcohol use/attitudes may differ in their salience for adolescent drinking behaviour (Brook, Brook, Gordon, Whiteman, & Cohen, 1990; Conger, Rueter, & Conger, 1994).

In general, both psychosocial approaches fail to demonstrate the interrelation of various family subsystems and individuals' behaviours in relation to adolescent alcohol use (Minuchin, 1985). The desire to understand the complex dynamics within families more comprehensively stimulated the inclusion of diverse aspects of the family environment in research on influences on child adjustment (e.g. Hetherington et al., 1999; Hinde & Stevenson-Hinde, 1988). Parent-child relations have been considered in the context of such family factors as the marital relationship and parental characteristics (e.g. Belsky, 1984). Moreover, the inclusion of siblings in family designs allows for the examination of the microenvironments these siblings experience and occupy within their families (Daniels & Plomin, 1985; Dunn, 1992). Steinberg and Morris (2001) acknowledged in a recent review of research on adolescence that there has been a shift in focus towards family systems and siblings in research in addition to the traditional focus on the parent-adolescent dyad. However, few studies investigated the wider family context relating to adolescent alcohol use, with some of them even including siblings as a source of influence (e.g. Conger et al., 1991; Conger & Rueter, 1996; Conger et al., 1994). Despite this shift toward examining the larger family context, no British publications in relation to young people's drinking behaviour were found in research for this thesis.

Based on these shortcomings, this thesis uses a definition of the family context as consisting of two parents and two siblings (see Figure 1.1 b). This definition further borrows from a conception of the family based on *family systems theory* (Cox & Paley, 1997; P. Minuchin, 1985; S. Minuchin, 1974). According to family systems theory, every family member is part of an interdependent, interactional system within which the behaviour of an individual or subsystem (e.g. marital, parent-child, or sibling subsystem) modifies that of other subsystems or individuals (Cox & Paley, 1997; Minuchin, 1985, 1988). Considering that about three-quarters of all children in the UK grow up with at least one sibling (Office for National Statistics, 1999), it seems crucial to explore the within-family processes experienced by these youngsters in relation to adolescent alcohol use.

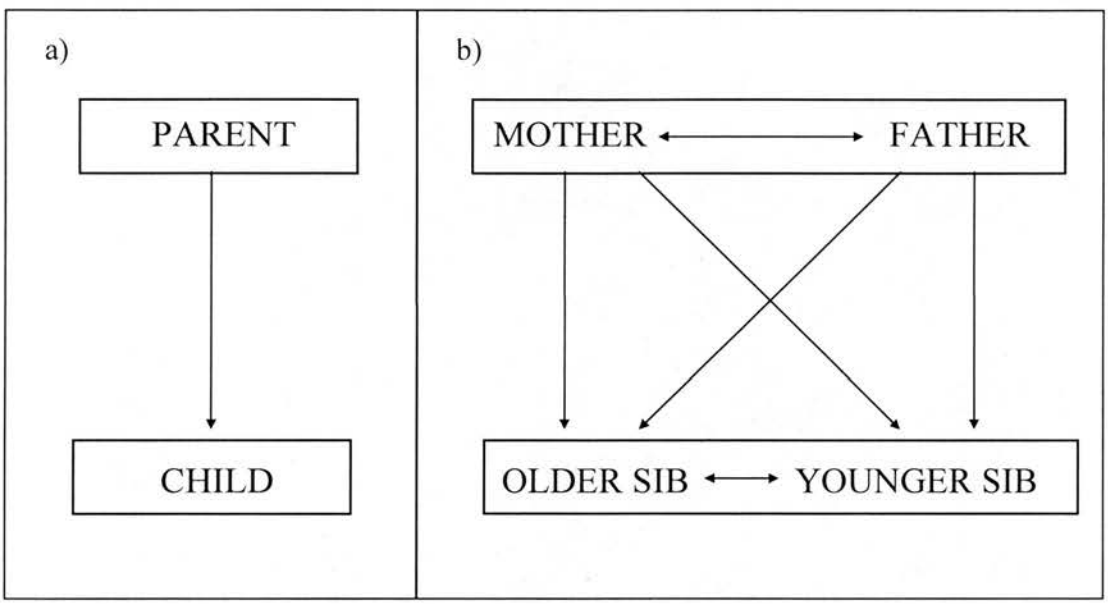

Figure 1.1. Family schema

The simple schema in Figure 1.1 a) depicts the core unit of examination in many studies: from parent to child. However, Figure 1.1 b) shows that families are more complex. Here four combinations of parent and child are possible, which may differ due to their different constituent members (Minuchin, 1985). Indeed, research has shown that mother-child and father-child relationships are different (Grusec, 2005; Lamb & Lewis, 2004). Evidence suggests that fathering contributes to children's adjustment above and beyond mothers' involvement

(Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Flouri & Buchanan, 2003a, b). Therefore, mother-child and father-child relations need to be examined separately. Furthermore, the schema suggests that parents and siblings also constitute separate family subsystems: the marital/spousal subsystem and the sibling subsystem. Family effects can operate from parent to child but also from sibling to sibling. Moreover, the marital subsystem may affect the parent-child and the sibling subsystem. Parental characteristics (e.g. depression, alcohol misuse) influence parent-child relations (e.g. Belsky, 1984). The sibling relationship itself is an important factor for children's cognitive, emotional, and behavioural development (Brody, 1996, 2004; Hetherington et al., 1999). Therefore, such an extended conception of the family allows a more detailed and comprehensive examination of family influences on adolescent alcohol use than many previous approaches.

In attempting a comprehensive approach, a further aspect of families needs to be considered which has featured as a key theme in socialisation research (e.g. Maccoby & Jacklin, 1974; Maccoby & Martin, 1983): the role of *gender*. Several researchers have rightly pointed toward gender as an 'organising feature' in the social world of the family (Crouter, McHale, & Bartko, 1993; Maccoby, 1990). The importance of gender becomes explicit in two ways. Alcohol consumption is a culturally bound activity (Peele & Grant, 1999), with different norms, standards and expectations regarding the drinking behaviour of males and females (e.g. Nadeau, 1999; Plant, 1997). Drinking behaviour has been perceived as "a sign of virility for men and immorality for women" (Nadeau, 1999, p. 313). Family members are aware of these different gender standards and may reinforce them in their socialisation attempts. Thus, the family should be viewed as a mediator of macrosystem (i.e. cultural) influences on the developing individual according to an ecosystems perspective (Bronfenbrenner, 1986; see also Collins et al., 2000).

Apart from the gender-related drinking culture, the socialisation of young people favours different socialisation goals for males and females (e.g. see Lytton & Romney, 1991 for discussion). As suggested by gender socialisation theory, males are more encouraged to value more agency, exploration, independence, and risk-taking, whereas females should show greater concern for relationships and emotional bonds (see Harter, 1990; McHale, Crouter, & Tucker, 1999; Windle, 1992; Windle & Davies, 1999). Such socialisation goals may alter interaction

between family members depending on their sex. Female adolescents may experience less encouragement for alcohol use and generally stricter control over their lives, and therefore fewer opportunities for drinking than their male counterparts. In contrast, females may be more sensitive to disruptions in family relationships and use alcohol in response.

In general, there is an abundance of research that has explored gender of family members in relation to adolescent alcohol use (see Chapters 2 and 3). These studies usually took a conventional view on gender within dyadic interaction. However, the complexity of within-family processes in relation to gender becomes even more evident when sex of a family member (e.g. sibling) is examined as a context for other subsystems (e.g. parent-child) (McHale & Crouter, 1996). This refers to Bronfenbrenner's (1979) concept of '*second-order effects*', meaning "the indirect influence of third parties on the interaction between members of a dyad" (p. 68). Within this thesis attention will not only be paid to gender influences within dyads but also in terms of a contextual influence altering dyadic interactions which have been associated with adolescent alcohol use (for further detail see Chapters 2 and 3). Thus, with parents responding to child characteristics (e.g. Belsky, 1984), adolescent/sibling gender may represent just such a stimulus.

So far the notion that family influences are related to adolescent alcohol use has been discussed. The next step involves examining the aspects of the family environment that are important in this regard. Both Foxcroft and Lowe (1997) and Velleman and Orford (1999) suggest a classification into *alcohol-specific* and *non-alcohol-specific* factors. Although Velleman and Orford (1999) assessed a third category of variables concerning how alcohol use is transmitted within families, through genetic-biological factors, this research is not reviewed here (e.g. see McGue, 1999). This thesis takes an environmental perspective on the family and will only consider genetic research where it makes a distinct contribution in assessing or interpreting other research or findings of this study.

The following two sections will introduce theories, concepts, and debates in relation to alcohol-specific and non-alcohol-specific family factors separately. The detailed review of empirical evidence relating to the two areas is reserved for Chapters 2 and 3, respectively. In terms of the alcohol-specific environment, the thesis draws repeatedly on social learning theory. In relation

to the non-alcohol-specific environment, the focus is on family relationships and their interrelations by additionally relating to concepts regarding the rearing environment of siblings.

1.5. Alcohol-Specific Family Factors: Social Learning of Alcohol Use

Alcohol-specific factors refer to direct alcohol-related behaviours and attitudes of family members. In relation to these factors, the foremost focus of research on the family context has been the transmission of alcohol use/misuse from parent to offspring (see Figure 1.1 a). A widely and successfully used theoretical approach to the transmission of alcohol use, not only in the family context, has been *social learning theory* (Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979; Bandura 1977, 1986; see also Leonard & Blane, 1999; Maisto, Carey, & Bradizza, 1999; Petraitis et al., 1995 for review). Social learning theory (Bandura 1977), however, does not represent an alcohol-specific theory but a general theory of human behaviour (Maisto et al., 1999). In this thesis, no attempt is made to test social learning theory. Rather, certain concepts are borrowed from this theory for the examination of the impact of alcohol-specific learning factors on adolescent alcohol use. At this point only a general introduction to key concepts of social learning theory and recent debates is provided. A more detailed review of empirical findings on social learning of alcohol use within families is presented in Chapter 2.

Kandel and Andrews (1987) have highlighted two kinds of social learning processes underlying the interpersonal influence: modelling/imitation and social reinforcement. In the process of *modelling/imitation*, individuals imitate the modelled behaviour by valued others, e.g. parents' alcohol consumption. *Social reinforcement* refers to individuals' response to what significant others define as appropriate behaviours and values concerning specific issues. This includes favourable statements, attitudes and norms toward adolescent alcohol use by parents as well as their responses when their children become involved in alcohol consumption, e.g. sanctions for use (see Petraitis et al., 1995). However, it needs to be stressed that identification with the model is an essential prerequisite for the success of social learning.

As already mentioned, the primary focus of previous research has been the dyad of parent and child. Velleman and Orford (1999) have summarised why the parent-child relationship provides such ideal conditions for social learning. Young people experience their parents as models for alcohol consumption over a long period of time. Parents' position is of relatively high social

power in relation to the child and, despite changes in the parent-adolescent relationship, parents remain important and valuable (Coleman & Hendry, 1999). In addition to observational learning, parents encourage or discourage adolescents' behaviours. They may explicitly set norms for acceptable forms of alcohol use or sanction undesirable drinking behaviours. Moreover, parents may make alcohol available to their offspring in some form, considering that most young people are introduced to alcohol by their parents (e.g. Sharp & Lowe, 1989). Based on these considerations, similarity in the drinking behaviour of parents and their offspring seems conclusive. Indeed, a large number of research studies has examined the parent-child association in relation to alcohol use as well as tobacco and illicit drug use and found positive associations (e.g. Foxcroft & Lowe, 1997; see reviews in Ary et al., 1993; Needle et al., 1986).

Although different social learning effects for different children within families have not been specified, evidence is emerging that parental alcohol use may not impact similarly on siblings (e.g. Conger et al., 1994; Duncan, Duncan, & Hops, 1996). This indicates that parental alcohol use may not function as a shared family level influence. However, few American reports provide the empirical bases regarding actual drinking behaviour and no findings so far concern the role of attitudes and norms for siblings. Chapter 2 will return to this issue.

More recently, attention has been drawn towards siblings as sources for social learning of alcohol use. Older siblings in particular carry similar features discussed for parents: time to model alcohol use; and provision of alcohol. Older siblings are also in the position of relative higher social power although sibling relations become more egalitarian during adolescence (Buhrmester & Furman, 1990). Furthermore, they may fulfil roles which parents are unlikely to meet such as acting as a mentor who advises about drinking or looks out for the younger brother or sister at parties (quote taken from Kloep et al., 2001):

> "*It was my brother, he helped me to understand alcohol and drink and all the rest of it. He taught me all about it and showed me what it can do to you and how it could ruin you ... " [Scottish boy, 15]* (p. 288).

Siblings have been considered as a form of same-age peer influence (Brook, Whiteman, Gordon, & Brook, 1990; Needle et al., 1986; Rowe & Gulley, 1992). However, sibling designs offer the advantage of almost eliminating selection effects as a method confound known from many peer

influence studies (Kandel, 1996). Siblings are the result of another birth and cannot easily avoid each other when living in the same home. Yet, some choice among several siblings may be possible (e.g. in regard to spending time together).

Overall, existing evidence suggests that siblings' behaviour and attitudes represent important socialisation influences for young people (Ary et al., 1993; D'Amico & Fromme, 1997; Rowe & Gulley, 1992). The emergence of sibling effects, in addition to the established parental influence, has led some studies to assess their relative salience comparatively. Evidence suggests greater importance of siblings than parents in cross-sectional (Ary et al., 1993; Brook, Whiteman et al., 1990; Conger & Rueter, 1996; McGue, Sharma & Benson, 1996a; Meier, 1991; Melby et al., 1993; Windle, 2000) and longitudinal studies of substance use (Conger & Rueter, 1996; Duncan et al., 1996 versus Ary et al., 1993). Such evidence seems to support Rowe's (1994) argument that horizontal cultural transmission within generations (e.g. sibling-sibling) is more salient than vertical cultural transmission of alcohol use between generations (e.g. parent-child). In contrast, the situation regarding greater importance of sibling or parental attitudes is less consistent and possibly of reverse direction (Ary et al., 1993; Brody, Flor, Hollett-Wright, & McCoy, 1998; Needle et al, 1986).

Further support for the stronger social/environmental influence of siblings than parents comes also from behaviour-genetic studies. Such evidence generally suggests that parent-child resemblance in alcohol use is genetically transmitted (Koopmans & Boomsma, 1996; McGue et al., 1996a), underplaying the role of environmental mechanisms. However, sibling similarity in alcohol use is based on shared environmental influence resulting from a shared environment the siblings provide for each other (e.g. spending time together, drinking together) (McGue et al., 1996a; Rose, Kaprio, Williams, Viken, & Obremski, 1990). Without taking a behaviour-genetic view in this thesis, these findings have stimulated research examining environmental processes among siblings, which may support social learning, more closely. This evidence is explored in detail in the following chapter.

In summary, there is a sufficient basis for considering alcohol-specific family factors from a social learning perspective. Duncan et al. (1998) suggest that social learning principles represent the underlying mechanism that accounts for family similarity in drinking behaviour.

Both parents and siblings need to be considered. However, this thesis rather focuses on their independent than comparative contribution to adolescent alcohol use since there is no British research to build upon. Alcohol-specific factors relate to a variety of variables: maternal, paternal and sibling alcohol use and attitudinal measures and sibling provision of alcohol. The specific associations of these factors with adolescent alcohol use and conditions that further facilitate social learning are reviewed in Chapter 2 and examined empirically in Chapter 6.

So far the focus has been on direct alcohol-related family factors that affect adolescent alcohol use. In addition, further psychosocial factors of the family environment have been related to young people's drinking. The area of family socialisation research has also broadened their focus beyond the parent-child dyad. In investigations of the wider family context in relation to child development sibling relations have been included. In contrast to the rather direct role of siblings for adolescent alcohol use in terms of alcohol-specific factors, the perspective on siblings here takes a different form. Siblings are now considered more indirectly. This refers to the effect of the parent-sibling relationship on the adolescent drinking behaviour as well as the influence of the adolescent's own rearing experience. Additionally, the role of the siblings' relationship with one another for youthful alcohol consumption is explored.

1.6. Non-Alcohol-Specific Family Factors: Family Relations and Adolescent Alcohol Use

Non-alcohol-specific factors refer to the interactions among family members which are not specific to alcohol use (e.g. parental support or discipline). Parent-adolescent relations have traditionally been the central focus in research in relation to adolescent alcohol use (e.g. Foxcroft & Lowe, 1991; Hawkins et al., 1992). In more recent developments this central unit has been embedded in the wider family context (as described in relation to Figure 1.1 b) to better understand the complexity of family influence. No single theory accounts for such research and in accord with other studies (e.g. Conger et al., 1994; Hetherington et al., 1999) a variety of complementary theories and models are drawn upon in this thesis. Again, at this point, only an introductory overview of concepts and general challenges is provided. A detailed review of published findings according to these perspectives is presented in Chapter 3.

One important theoretical approach is *family systems perspective* which stresses the interrelatedness of family subsystems – marital, parent-child, and sibling subsystem (Cox & Paley, 1997; Minuchin, 1988; see section 1.4). Studies have shown congruence in the quality among the marital, parent-child and sibling subsystem (Brody, Stoneman, & McCoy; 1992; Furman, 1995; Margolin, Gordis & Oliver, 2004; Rinaldi & Howe, 2003). This suggests that positive or negative aspects of interaction within one subsystem are related to and influence similar aspects in other subsystems. Such congruence then provides a shared family climate which indirectly, through the parent-child relationship, influences adolescent adjustment (e.g. Jodl, Bridges, Kim, Mitchell, & Chan, 1999). Therefore, it is important to examine the relations among the various family subsystems in regard to adolescent alcohol use.

Another approach concerns the *stresses and strains* of family life influencing adolescent outcome through disrupted parenting. This research concerns such varied factors as family economic pressures, parental characteristics (e.g. depression, alcohol abuse), and marital problems (Belsky, 1984; Bronfenbrenner, 1986; Conger, Patterson, & Ge, 1995; Conger & Rueter, 1996; Forgartch, 2005; Grant et al., 2003; Henderson, Hetherington, Mekos, & Reiss, 1996; Hetherington et al., 1999; Margolin et al., 2004). Belsky (1984), for instance, has developed a complex model of determinants of parenting which may guide research. Specifically for this thesis the focus lies on parental alcohol use and the quality of the marital relationship functioning as stresses for the parent-child relationship.

A third theoretical approach originates in recent developmental research stimulated by behaviour-genetic findings. Siblings, despite growing up in the same family, are rather more different than similar in personality and behaviour, including alcohol use (Hetherington et al., 1994). This may appear controversial in relation to the sibling similarity in drinking described in the previous section. However, Chapter 2 will show that siblings' resemblance is at most moderate; siblings are by far not identical in their alcohol use. To explain such sibling differences, siblings' unique, *nonshared experiences* within the family environment were identified (Dunn & Plomin, 1990; Hetherington et al; 1994). Nonshared environmental factors, by definition, make siblings different from one another (Dunn & Plomin, 1990; Plomin & Daniels, 1987). In contrast, shared environmental influences (e.g. divorce, parental alcohol use) make siblings similar. Because siblings are rather unalike, shared environmental effects were

conceived as being outweighed by nonshared ones (Plomin & Daniels, 1987), a claim that recently needed to be rectified (see Reiss, Neiderhiser, Hetherington, & Plomin, 2000; Rutter, 2002). Moreover, shared family level influences were shown to have differential effects on siblings based on their differences in age, developmental status, gender, personality, and cognitive processing abilities (Dunn & Plomin, 1990; Hoffman, 1991; O'Connor, 2002; Turkheimer & Waldron, 2000; Wachs, 1992). Thus, children within the same family experience objectively and subjectively different family environments (Hoffman, 1991). However, to understand children's unique niches within families, sibling designs are necessary because conventional approaches only provide information on the target child's environment (i.e. child-specific effects) (e.g. Dunn & Plomin, 1990).

Differences in parenting of siblings have become an important area in investigating nonshared effects (e.g. Feinberg & Hetherington, 2001; Reiss et al., 1995). In contrast to the above effect-based definition of shared/nonshared environment, Turkheimer and Waldron (2000) stress the necessity of distinguishing between *objective* environments in reference to environmental events as observable by a researcher and *effective* environments as defined by the outcome they produce. *Differential parental treatment* of siblings represents such a nonshared effective and nonshared objective environment (e.g. Feinberg & Hetherington, 2001; Pike, Hetherington, McGuire, Reiss, & Plomin, 1996). Research evidence demonstrated that these objective differences in siblings' treatment relate to sibling differences in age, gender, personality and temperament (Henderson et al., 1996; Jenkins, Rasbash & O'Connor, 2003; Kowal & Kramer, 1997; see also Steinberg & Morris, 2001). These differences may also reflect gene-environment correlations[2] (Reiss et al., 2000). Stressful family environments, characterised by marital dissatisfaction, large family size, single parenthood, and low socio-economic status, also contribute to differential treatment of children (Jenkins et al., 2003; McHale, Crouter, McGuire & Updegraff, 1995). Differential parenting which has been reported by both parents (McHale & Pawletko, 1992) and siblings (Daniels & Plomin, 1985) has been associated with various adolescent outcomes (Feinberg & Hetherington, 2001; Reiss et al., 1995). However, no publication regarding adolescent alcohol use has been found in researching this thesis.

[2] Increase in phenotypic variance that occurs when children experience environments correlated with their genetic propensities (Plomin & Daniels, 1987; Scarr & McCartney, 1983).

In approaching differential parenting as a nonshared environment for siblings' alcohol use, a similar strategy to Reiss et al. (1994) is employed in this thesis. First, conventional studies focusing on a single child per family were considered for environmental measures associated with adolescent drinking. Within the substantial research on family socialisation two dimensions have been repeatedly identified: they refer to supportive and controlling behaviours (Foxcroft & Lowe, 1991; Maccoby & Martin, 1983). *Family support* emerges under such diverse labels as warmth, support, affection, nurturance, etc.; *family control* is referred to as control, discipline, punishment, coercion, etc. in the literature (see meta-analysis by Foxcroft & Lowe, 1991).

A further construct has been frequently and strongly related to risk-taking and problem behaviours among youth, including alcohol use. *Monitoring* concerns parental knowledge of their children's activities and whereabouts (e.g. Patterson & Stouthamer-Loeber, 1984). Previously it has been conceptualised as a controlling behaviour in terms of parental tracking and surveillance of their offspring (see Kerr & Stattin, 2000). Swedish research, however, has shown that parental knowledge seems to originate from adolescents' spontaneous disclosure of information, based on trusting parent-child relations and good communication (Kerr & Stattin, 2000; Kerr, Stattin, & Trost, 1999). It appears difficult to place monitoring on either of the two dimensions which is therefore considered as a separate domain.

Second, the measures needed to assess nonshared aspects of siblings' experiences with parents. Thus, an important reference became the Nonshared Environment and Adolescent Development project (NEAD) (Reiss et al., 1994; 2000; see Chapter 3). This study used measures of warmth/support, conflict/negativity, and monitoring which were shown to provide variation among siblings (Hetherington & Clingempeel, 1992; for further detail on measures see method chapter, Chapter 4). Similar to the NEAD project, a further measure of siblings' differential involvement in inter-parental conflict (Mekos, Hetherington, & Reiss, 1996) was included. Overall, these measures assess specific, subjective experiences of individual siblings with either parent. Thus, the use of such constructs that have been shown to influence level of alcohol use *across* families are now examined whether they are related to siblings' alcohol use *within* families. Specific models and methodologies are discussed in Chapter 3. With the lack of

alcohol-related research in this area, it is essential to draw upon studies that focused on other adjustment measures, some of them containing alcohol use within a composite.

With marital and sibling relations as the wider context around parent-adolescent relationships based on family systems perspective, constructs assessing positive and negative aspects within these subsystems similar to the parent-adolescent one are the focus. In terms of the sibling subsystem, corresponding aspects concern each sibling's experience of sibling warmth and conflict. Regarding the marital subsystem and by additionally accommodating the stresses and strains perspective, attention is paid to overall marital quality and negative aspects of spousal relations (i.e. marital distress/conflict).

In summary, although non-alcohol-specific factors of the parent-adolescent relationship remain the central focus, they are considered within the wider family context. This thesis argues for an antecedent-consequence model which is presented in Chapter 3. The anticipated associations concern marital quality and parental alcohol use as determinants of the parent-child relationship that in turn is related to sibling relationship quality and adolescent alcohol use. Within this model, siblings' nonshared experiences with parents in terms of differential parenting are integrated. Thus, the sibling design will help to address the distinction between family-level and individual-specific environmental influences affecting siblings' alcohol use. The specific empirical evidence in support of the proposed associations between the family subsystems and adolescent alcohol use is reviewed in Chapter 3. The model itself is empirically tested in Chapter 7. In contrast to Chapters 2 and 6, the focus is on dissimilarity in siblings' alcohol use resulting from complex intrafamilial processes.

1.7. Summary and Conclusions

This chapter has introduced adolescent alcohol use in the family context. Youthful alcohol use, although part of normative development, has caused concern due to age-inappropriate and excessive consumption. The family environment has been shown to influence young people's drinking behaviour through alcohol-specific and non-alcohol-specific factors (e.g. Foxcroft & Lowe, 1997). Yet, British research on adolescent alcohol use and the family context is rather scarce. Recent trends in adolescent research outside the UK focus on the larger family context, inclusive of siblings (Steinberg & Morris, 2001). Within the social learning approach, favoured

for alcohol-specific factors, questions emerged whether parents' alcohol use and attitudes are of similar relevance for individual siblings' drinking. More recently, older siblings have been stressed as an important source for the social learning of alcohol use among young people. Other perspectives such as family systems and stresses and strains propose the importance of investigating parent-child relations in the context of other family subsystems and factors such as parental characteristics. With emphasis on siblings' differential rearing experiences for child adjustment, the focus on comparing children between families shifted to comparing children *within* families. However, many of these advances have not been applied to the area of adolescent alcohol use.

The scarcity in research evidence is addressed by this thesis which attempts to provide a comprehensive examination of the complex processes within the family affecting adolescent alcohol use (e.g. see Jodl et al., 1999 on other outcomes). From a social learning perspective, this thesis will explore the role of parental alcohol-specific factors for two siblings as well as the role of older siblings for their younger brothers and sisters. In addition, based on the claim of sibling dissimilarity, siblings' differential experiences with their parents are examined in relation to adolescent alcohol use. However, these parent-child relations are investigated in their association with parental alcohol use, marital and sibling relations. Thus, this thesis will contribute to identify factors which function on a family level and those that are child-specific from a within-family perspective.

1.8. Outline of this Thesis

This thesis is structured around eight chapters, three literature review chapters (inclusive of this chapter), a method chapter, three result chapters and the final discussion chapter. The following two literature review chapters continue with the discussion of alcohol-specific (Chapter 2) and non-alcohol-specific family factors (Chapter 3) in relation to adolescent alcohol use. Chapter 2 focuses on social learning within dyads of parent and child and siblings. Chapter 3 takes a broader view on family processes, going beyond dyads of parent and child by attending to the complex relations among family subsystems in relation to adolescent alcohol use. Within this context, findings and methodological approaches from research on siblings' differential experiences with parents in relation to sibling outcome are embedded. Based on the reviews, Chapter 4 introduces the methods employed in this study. The subsequent chapter (Chapter 5)

further adds to some methodological issues such as describing the families in terms of alcohol use prevalence and arguments for selection of respondents. Thereafter, the empirical investigations in relation to the social learning perspective (Chapter 6) and the combined approach of interrelated family subsystems with differential experiences of siblings (Chapter 7) are presented. Finally, in Chapter 8, the main findings of this thesis are discussed in regard to: usefulness of the chosen approaches; the relative role of the family as a socialisation agent; implications for alcohol misuse prevention; and limitations of this study.

CHAPTER 2

SOCIAL LEARNING OF ALCOHOL USE: THE INFLUENCE OF PARENTS AND SIBLINGS

2.1. Introduction

The purpose of this chapter is to review the published evidence on alcohol-specific family factors, specifically the social learning of alcohol use among family members. The previous chapter has already addressed the significance of social learning theory (Bandura, 1977, 1986) for the area of alcohol use (Leonard & Blane, 1999; Petraitis et al., 1995). Modelling/imitation of drinking behaviour and social reinforcement (through attitudes, norms, etc.) were identified as key social learning processes. Traditionally, the social learning perspective has been applied to explain the association between a parent's and offspring's drinking behaviour (see Petraitis et al., 1995 for review). In recent years, social learning processes have also been used to explain the influence of older siblings on their younger brothers and sisters in relation to use of alcohol and other substances (see Ary et al., 1993 for review). Overall, parent and offspring as well as siblings seem to show small to moderate similarity in alcohol use and misuse (e.g. Ary et al., 1993; Duncan et al., 1996; Duncan, Duncan, Hops, & Alpert, 1997; Dunn & Plomin, 1990; McGue et al., 1996a; Needle et al., 1986; Peterson, Hawkins, Abbott, & Catalano, 1994; Webster, Hunter, & Keats, 1994). The model in Figure 2.1 shows so far established causal relations between adolescent alcohol use/attitude and parental and sibling drinking and attitudes, which themselves appear to be related (e.g. Ary et al., 1993).

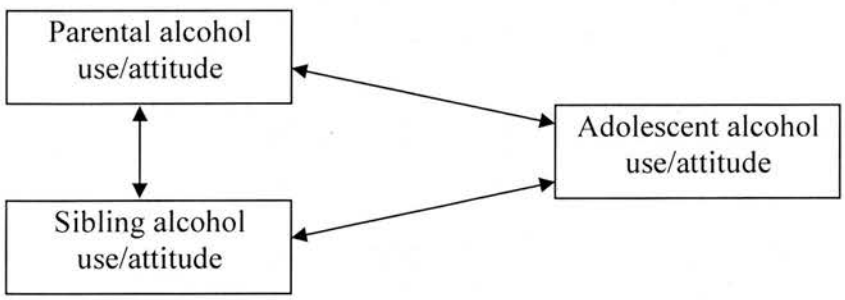

Figure 2.1. A theoretical model for social learning of alcohol use from parents and siblings

In the following two sections published findings on social learning of alcohol use from parents and older siblings are reviewed in separate sections. Central to this research evidence is the focus on dyads (parent-child, sibling-sibling) as the unit of examination. This review on the role of parents and older siblings as models for, and reinforcers, of adolescent alcohol use also considers contexts that may facilitate social learning of alcohol use among adolescents. Such contextual factors include demographic variables (e.g. gender) and siblings' social interaction. The final part of this chapter discusses limitations of previous research and the implications for this thesis in relation to a social learning approach.

2.2. The Role of Parental Alcohol Use and Attitudes for Adolescent Drinking Behaviour

Parents have been identified as important role models and reinforcers regarding drinking behaviour, attitudes, and norms for their offspring's alcohol use (see Ary et al., 1993; Needle et al., 1986 for reviews). Although in general there seems to be evidence for social learning from parents, inconsistencies and controversies remain among findings. Two issues have been selected for detailed discussion here. The first one refers to the role of gender in the parent-child transmission of alcohol use. The second one relates to the relative importance of parental drinking behaviour and attitudes for adolescent alcohol use. The following assessment of empirical evidence in relation to parental drinking and attitudes will not only highlight universal findings but pay attention to these controversial issues.

2.2.1. Parental Alcohol Use

The many studies investigating the association between parental and adolescent drinking behaviour have demonstrated effects of varying degrees. Some researchers found no support at all for such an association (for a review see Ary et al., 1993; e.g. Needle et al., 1986 [for consumption of beer and wine]; e.g. Yu, 2003). The majority of research, however, is based on cross-sectional designs and has established a positive relationship between parental drinking (perceived and self-reported) and offspring alcohol use (Conger & Rueter, 1996; Cooper, Peirce & Tidwell, 1995; Duncan et al., 1996; Hellandsjø Bu, Watten, Foxcroft, Ingebrigtsen & Relling, 2002; Hops, Tildesley, Lichtenstein, Ary, & Sherman, 1990; Needle et al., 1986 [liquor use only]; Webster et al., 1994; Weinberg, Dielman, Mandell, & Shope, 1994; Weitzman & Wechsler, 2000). Others failed to find such concurrent effects, but nonetheless managed to

demonstrate evidence of parental modelling on adolescent drinking behaviour over time. Several studies reported prospective effects of parental alcohol use on adolescent drinking behaviour or changes in offspring consumption (Ary et al., 1993; Engels & van der Vorst, 2003; White, Johnson & Buyske, 2000). Overall, more frequent parental drinking and parental problem drinking were associated with greater drinking frequency, heavy alcohol use and alcohol problems among adolescents both cross-sectionally and longitudinally. Yet, the association is only of small to moderate magnitude. Foxcroft and Lowe (1997) generally confirmed these largely American findings with a sample of English adolescents. Perceptions of regular parental drinking were associated with higher levels of alcohol use among youth.

The pattern of findings becomes even more complicated when *gender* of parent and/or child is taken into account. Not all studies reviewed here attended to gender in the parent-child transmission of alcohol use (e.g. Ary et al., 1993; Webster et al., 1994). Some showed that either parent's use increased the risk for drinking of boys and girl (Hellandsjø Bu et al., 2002; Weinberg et al., 1994). However, a growing body of research found rather complex interactions of parent sex and child sex. These findings can be divided into two broad groups: parent-child transmission that follows along gender lines (gender symmetry) and those that do not (gender asymmetry). Differences in findings among studies may have arisen from the different methodologies used. Studies have relied on different age groups of adolescents (e.g. ranging from early to late adolescence). They have also employed a variety of measures of alcohol use (e.g. frequency of alcohol use, heavy (episodic) drinking, alcohol problems) to describe parental and adolescent drinking behaviour. Yet, despite these methodological differences researchers draw on different theories to interpret their findings. Several of these theories and interpretations are discussed with the following research examples.

Several studies reported *gender symmetry* in the parent-child transmission – from father to son/mother to daughter – for alcohol use and health-risk lifestyle (McGue et al., 1996a; Yu & Perrine, 1997; Wickerama, Conger, Wallace, & Elder, 1999). Further support also comes from studies suggesting greater influence of mothers for girls than for boys as regards tobacco use and substance use (Andrews, Hops, Ary, Tildesley, & Harris, 1993; Kandel & Wu, 1995). This pattern appears theoretically grounded in social learning theory (Bandura, 1977). Greater similarity of model and imitator (e.g. same sex) increases salience of the model which facilitates

imitation, thus social learning. Further theoretical support is provided by the gender intensification hypothesis (see Crouter, Manke, & McHale, 1995 for discussion), suggesting that social pressure to conform to traditional gender roles makes girls orientate on female models (i.e. mother) and boys on male models (i.e. father) in relation to alcohol use. Hence, the more frequent interaction of same gender pairs of parent and child would increase their behavioural similarity (see Wickerama et al., 1999).

In contrast, *gender asymmetry* has also been suggested by a diverse variety of findings. Some report greater vulnerability among male than female offspring regarding problematic alcohol and other substance use (Cooper et al., 1995; Weitzman & Wechsler, 2000). Others found daughters to be more affected by a family history of alcoholism because of their stronger family-focused socialisation (Galaif, Stein, Newcomb, & Bernstein, 2001). Another group stresses mothers' alcohol use as representing a more deviant form (culturally less acceptable, interfering with main caretaker role) than fathers' drinking (Chassin, Pillow, Curran, Molina, & Barrera, 1993; Weitzman & Wechsler, 2000). Therefore, Conger and Rueter (1996) concluded that mother's alcohol use does "more to legitimize such activities than does fathers' use" (p. 27). Again, this is contradicted by the finding of a significant relationship for heavy drinking between father, but not mother, and adolescent (Wickerama et al., 1999). Some research suggests that the relative scarcity of fathers in every-day life of their children may increase their salience for certain behaviours (see Brody et al., 1992).

To further complicate matters, another range of published evidence may offer some explanation for the symmetrical/asymmetrical findings. A good parent-child relationship has been shown to condition parental influence and not gender similarity per se (Andrews, Hops, & Duncan, 1997; Brook, Gordon, Whiteman, & Brook, 1986; Brook, Whiteman, Gordon, & Brook, 1984). In fact, a positive relationship with a parent provides a stronger basis for identification with that parent and imitating his/her behaviour than simply being of the same sex. In a study by Andrews et al. (1997), father's drinking behaviour was modelled by younger girls (<14 years) and older boys (=/>14 years) only when they had a good or moderate relationship with him. Considering the wider literature on adolescent development, research showed increased mother-daughter conflict during puberty, which was of greater intensity than in other dyads in the

family (Steinberg, 1988). Therefore daughters may be less likely to model their mothers' behaviour (see Andrews et al., 1997).

A different, more psychodynamic, perspective is provided by Schachter's concept of split-parent identification (1982). In comparison to the above findings which are based on between-family research on parent-child dyads, Schachter focuses on within-family dynamics (i.e. the family tetrad consisting of two parents and two siblings). Split-parent identification suggests that each sibling identifies with a different parent. Together with sibling de-identification, it serves the purpose to avoid sibling rivalry, thus maintaining family equilibrium. In Schachter's work split-parent identification was most prominent among same-sex siblings, suggesting that modelling of parental alcohol use would not necessarily follow along gender lines. However, Schachter (1982) also proposed that the same-sex rule applies under certain conditions such as potency attributes of males. Drinking behaviour may actually represent such masculine potency attributes (see Chapter 1; Nadeau, 1999) and may promote social learning from father to son. In general, Schachter's concept suggests that identifying with a parent and developing similar drinking behaviours seems a very complex process, not simply depending *on the dyad.*

Overall, the discussed evidence regarding gender-related patterns of social learning of alcohol use has shown that findings emerged for any possible gender combination of parent and child. Further empirical and theoretical evidence has usually been offered in support of either of these findings. However, these rich and diverse data leave room for speculation about what pattern may become evident in a British community sample where the focus is on 'normal' alcohol use and not on indicators of alcohol misuse. Chapter 6 will therefore empirically test the gender patterns in the parent-child transmission of alcohol use.

More recently, the trend of including a sibling in the research design led to more differentiated findings on the intrafamilial level of parental alcohol use effects. In the research by Conger and colleagues, it emerged that younger siblings' drinking was only affected by mothers' concurrent alcohol and substance use problems. However, older siblings' consumption was associated only with fathers' alcohol problems in one study (Conger et al., 1994) but with either parent's history of substance use problems in another (Conger & Rueter, 1996). Gender of the adolescent seemed less important than developmental stage. Duncan et al. (1996), applying latent growth

curve modelling, found only evidence for parental substance use level influencing siblings' level of use, which in turn affected the younger target's initial status. Thereby older siblings functioned as a continuous source of influence on target's substance use development. Generally, these studies provide support for the idea that an objectively shared environmental factor as parental alcohol use is not necessarily experienced in the same way by all children in the family, thus is not subjectively shared by siblings (see discussion in Chapter 1). This issue of whether parental alcohol use is similarly salient for different children within a family is among the key aspects of this investigation and therefore examined in Chapter 6.

To summarise, parental drinking influences adolescent alcohol use at least concurrently. Parent and/or adolescent gender appear to moderate this association, with evidence being inconsistent and suggesting both gender symmetrical and asymmetrical patterns. Few studies examined the influence of parental alcohol use on the drinking behaviour of siblings which indicate that parental drinking may have different effects on their behaviour. The review so far concerned the effect of parents' actual alcohol consumption. However, parents also exert influence through their attitudes which are now turned to.

2.2.2. Parental Attitudes toward Alcohol Use

Parental attitudes towards alcohol and other substance use seem to influence adolescent drinking as guidelines of what parents deem acceptable behaviour for them. From a conceptual and measurement point of view they seem to be divided into general attitudes and more specific norms for alcohol use. *General attitudes* seem to reflect more general views of parents in relation to approving/disapproving or not wanting adolescents to use alcohol or beliefs of health-damaging effects (e.g. Ary et al., 1993; Foxcroft & Lowe, 1997; Yu, 1998). *Norms*, in contrast, provide a more specific definition of standards which parents set for alcohol use in general and in particular situations, also allowing for developmental changes (Brody et al., 1998; Peterson et al., 1994).

Evidence for the effectiveness of both measures has been found. Norms and attitudes disapproving of adolescent alcohol use were associated with lower use among adolescents in cross-sectional studies (Ary et al., 1993; Foxcroft & Lowe, 1997; Foxcroft, Lowe, Weill, Alvarez, & Hellandsjø Bu, 1999; Yu, 1998) and over time in longitudinal research (Ary et al.,

1993; Peterson et al., 1994). In a Swedish study, 15 to 18 year old adolescents with liberal parents drank larger quantities, more often, and experienced intoxication more frequently than their counterparts with stricter parents (Lundborg & Stafström, 2000). Similarly, English 11-17 year olds reported heavier drinking when they perceived their parents as having an indifferent attitude towards their alcohol use as compared to those who perceived their parents as disapproving (Foxcroft & Lowe, 1997). Furthermore, when children perceived sanctions for their use of substances, they did not engage in use (Kelly & Hunn, 2002). Parental norms also seem to affect adolescents' norms (Brody et al., 1998). It has further been suggested that parental attitudes toward alcohol are particularly important because of their substance-specific and non-alcohol-specific effects. In a study by Andrews et al. (1993) parental attitudes towards alcohol use appeared to be the strongest predictor of use of *all* substances. Despite such evidence, some studies showed non-significant associations between parental attitudes and current adolescent alcohol use (Kandel & Andrews, 1987; Needle et al., 1986; see Ary et al., 1993 for review).

In contrast to research focusing on parent and child drinking behaviour, studies investigating the influence of parental attitudes and norms rarely considered gender effects. Some indication of gender differences in parental treatment of boys and girls in regard to drinking is given in Sharp and Lowe's (1989) review of earlier British alcohol research. The authors cite findings that primary school boys were more likely to have had a drink from their parents than girls and girls drank at home less regularly. An Australian study also provides support for gender-specific attitudes (Wilks & Callan, 1984, as quoted by Nadeau, 1999): participating mothers held more severe attitudes concerning the drinking of women and mothers than their husbands, sons, or their daughters. Thus, it may well be that parents tolerate alcohol use among male but not among female children.

The interesting question here does not so much relate to the role of gender between parent and child across families but rather refers to the gender combination in the triad of parent, adolescent and sibling within families (see Chapter 1). In regard to Bronfenbrenner's (1979) 'second-order effects', sibling gender combination can be regarded as a context for parental attitudes and behaviour whereby the gender of a sibling may alter parent-child interaction. The work by McHale, Crouter, and colleagues provides an excellent example of research on parent-

child interaction and gender socialisation in the context of sibling sex combinations. In general, adolescence is a period of intensified gender role socialisation and the presence of an opposite-sex sibling is salient for some aspects of adolescents' experiences in the family (e.g. joint activity with same-sex parent) (Crouter et al., 1995; see also McHale et al., 1999). Considering the cultural rules for male and female drinking and expectations for gender socialisation, it is surprising that no investigation has explored sibling gender in relation to such attitudinal measures of parents as child-specific norms or parental sanctions for adolescent alcohol use. Male adolescents should therefore not only experience more liberal norms and fewer sanctions than females, gender difference in norms and sanctions should be even more pronounced in opposite-sex pairs. Thus, in Chapter 6 the influence of mothers and fathers attitudinal measures is examined in two ways: first, in its effect on adolescent drinking overall and moderated by child gender; second, whether or not sibling gender functions as a context for parental norms and sanctions relating to alcohol use.

So far the review has established that both parental drinking and attitudes/norms influence adolescent alcohol use. However, the question emerges as to whether one or the other is of greater relative importance. The few reports that examined both variables comparatively suggest that parental attitudes and norms are more important than parents' actual drinking behaviour in influencing adolescent alcohol use (Ary et al., 1993; Foxcroft et al., 1999; Peterson et al., 1994). One British study reported heavy drinking among young people with non-drinking parents who were perceived to have indifferent attitudes towards alcohol use (Foxcroft & Lowe, 1997). In another investigation of parental influences on youthful alcohol consumption in four European countries, Foxcroft et al. (1999) concluded that within the family context parental attitudes might be the most important factor in determining the drinking behaviour of young people. They compared four different European countries – England, France, Spain, and Norway – and found that perceived parental attitude was consistently and independently linked with self-reported alcohol use among adolescents. This evidence is consistent with other studies in which parental influence appears to operate predominantly via perceived normative standards (e.g. Webster et al., 1994). Chassin, Presson, Rose, and Sherman (1998) even concluded that "adolescents' beliefs will be similar to what they think their parents believe, not necessarily what their parents actually believe in" (p. 214). The findings indicate the necessity of exploring

both parental drinking and attitudes in relation to adolescent alcohol use not just independently but within the same model. This part of the investigation is returned to in Chapter 6.

In summary, similarly to parental alcohol use, attitudes and norms appear to influence adolescent alcohol use. However, little is known about the role of parent and child gender in the influence of attitudes on adolescent drinking or in how strict norms and sanctions are set. Furthermore, there is some evidence supporting the greater salience of parental attitudes/norms for adolescent alcohol use over parents' actual drinking behaviour. Overall, an evidence base of social learning of alcohol use from parents seems established, though it is not entirely consistent. It has already been argued in Chapter 1 that siblings represent another source for social learning within the family context. Thus, the next section discusses findings on older siblings as sources of modelling and reinforcement of drinking behaviour among adolescents.

2.3. Older Siblings' Influence on Younger Siblings' Alcohol Use

Research on social learning of substance use and problem behaviours/delinquency from older siblings has been growing. Behaviour-genetic research has been a stimulating factor that triggered much of the interest in sibling influence. Recent twin and adoption studies have demonstrated shared environmental effects on adolescent alcohol and substance use (e.g. Maes et al., 1999; McGue et al., 1996a). McGue et al. (1996a) and Rowe and Gulley (1992) concluded that the shared environment may be provided by siblings for each other. This conclusion is supported by research showing that siblings' resemblance in deviance could not be explained by parental or peer factors (Ardelt & Day, 2002; Fagan & Najman, 2003; Lauritsen, 1993; Rowe & Gulley, 1992; Rowe, Rodgers, & Meseck-Bushey, 1992; Slomkowski, Rende, Novak, Lloyd-Richardson & Niaura, 2005). According to Reiss et al. (2000), reciprocity in the sibling relationship produces an equal and shared environment for both siblings. Consequently, some researchers proposed *'sibling effects'* (e.g. Rowe & Gulley, 1992) where the interaction of siblings contributes to their resemblance. This section will first discuss studies that examined older siblings as influences on their younger brothers and sisters. After describing areas of sibling influence, factors that facilitate or impede siblings' influence on alcohol use are addressed. Such factors include demographic variables like gender and age as well as siblings' social interaction.

A growing body of research evidence has demonstrated an association of older siblings' alcohol use with younger siblings' use (Ary et al., 1993; Conger et al., 1994; D'Amico & Fromme, 1997; Duncan et al., 1996; McGue et al., 1996a; Needle et al., 1986). Similar findings have also been reported for tobacco (Melby, Conger, Conger, & Lorenz, 1993; Slomkowski et al., 2005; Vink, Willemsen, Engels & Boomsma, 2003), drug (Brook, Whiteman et al., 1990), and substance use in general (Rowe & Gulley, 1992; Stormshak, Comeau & Shepard, 2004; Vakalahi, 2001; Vakalahi, Harrison, & Janzen, 2000; Windle, 2000). Substantial associations have also been reported for measures of siblings' delinquency which often include alcohol and/or drug use (Fagan & Najman, 2003; Lauritsen, 1993; Slomkowski, Rende, Conger, Simons, & Conger, 2001). Thus, having an older brother or sister who uses alcohol, drinks more frequently or excessively has been related to greater alcohol consumption among younger siblings. Moreover, older siblings' alcohol use has also been related to choice of alcohol-using friends, which in turn affect adolescents' use (Conger & Rueter, 1996). Additionally, siblings' showed similarity in norms (Brody et al., 1998) and younger siblings' alcohol use expectancies were associated with perceived older siblings' drinking (D'Amico & Fromme, 1997). In terms of active reinforcement, older siblings were found to play an important role in supplying younger siblings with alcohol and drugs (Brook, Whiteman et al., 1990; Needle et al., 1986), thus encouraging their use. This supply of drugs ('advocacy') by older brothers has been associated with younger brothers' drug use independent of older brothers' use (Brook, Whiteman et al., 1990). Research on boys' development of antisocial behaviour has also shown that brothers' direct practising of coercive behaviours (e.g. aggression) and cascading negative reinforcement processes contribute to the manifestation of behaviour problems (Bank, Patterson, & Reid, 1996; Patterson, 1984).

In general these studies indicate that older siblings provide an important source for social learning of alcohol use and deviant behaviours for their younger siblings. The associations between older and younger siblings' variables were usually of moderate magnitude. Again, almost all the findings originate from American research (exception: Vink et al., 2003 – The Netherlands). Thus, it seems to be essential to examine relationships between older and younger siblings in terms of drinking behaviour, attitudes, and the role of alcohol provision, which offers a valuable focus for this thesis (see Chapter 6).

So far the findings concerned a more universal level of sibling influence. Different family ecologies may either foster or impede older siblings' influence on younger siblings' drinking. Several studies examined the influence of sibling demographics on siblings' substance use. They found that demographic resemblance of siblings seemed to moderate their substance use similarity. Sibling resemblance on measures of alcohol and substance use was further increased when pairs were of same-sex and/or close in age (Koopmans & Boomsma, 1996; Maes et al., 1999; McGue et al., 1996a; Rose, Kaprio, Winter, Koskenvuo, & Viken, 1999; Rowe & Gulley, 1992; Vink et al., 2003 [longitudinal analysis]). For example, Rowe and Gulley (1992) reported a correlation of siblings' substance use (alcohol, tobacco, and marijuana use) of r=.40 for same-sex and r=.08 for opposite-sex siblings. The corresponding values in McGue et al.'s (1996a) study on siblings' alcohol involvement were r=.36 and r=.18 for same- versus opposite-sex pairs, r=.35 and r=.05 for similar versus dissimilar age pairs. The combined effect of both characteristics was even more pronounced: r=.45 for same-sex similar age sibling dyads as compared to r=.01 for opposite-sex dissimilar age siblings. More specifically among same-sex siblings, resemblance was of similar magnitude for brothers and sisters among twin (Koopmans & Boomsma, 1996; Maes et al., 1999; Rose et al., 1999) and non-twin siblings (Rowe & Gulley, 1992). However, Anderson (1999) reported greater outcome similarity among brothers than sisters.

Different explanations have been offered for these moderator effects. Reiss et al. (2000) suggested that opposite-sex siblings may be more susceptible to nonshared effects due to less reciprocity in their sibling relationship as compared to same-sex pairs. Such a proposition could also be adapted to dissimilar age siblings as compared to similar age pairs. In contrast, Rodgers, Rowe, & Harris (1992) who found more powerful modelling among siblings with wider age-spacing, proposed that the wider age gap provides the younger sibling with more time to observe and the older sibling with more time to demonstrate the behaviour. Based on this inconsistent evidence the role of sibling gender and age for sibling alcohol use is examined in this thesis (Chapter 6).

However, further factors beside demographic variables may contribute to identification with the model which is an essential condition for social learning. Similarly to parental modelling and reinforcement being more effective when adolescents and parents shared a good relationship

(Andrews et al., 1997), good sibling relations should increase siblings' value as role models and thus imitation. Few findings are available in this area. In Rowe & Gulley's (1992) original study, sharing warm sibling relations and having mutual friends conditioned siblings' resemblance in substance use and delinquency for both brothers and sisters (for replication see Slomkowski et al., 2001). Among brothers, a conflict-free relationship with one another also increased similarity in substance use (Rowe & Gulley, 1992). In a recent study sibling resemblance in smoking behaviour was also increased when siblings reported greater 'sibling social connectedness' (Slomkowski et al., 2005), a composite measure based on Rowe and Gulley's (1992) measures of sibling warmth and having mutual friends. In addition, conflictual sibling interaction appeared important for delinquency among siblings: hostile-coercive sibling relations increased the association between older and younger brothers and sisters (Slomkowski et al., 2001). Chapter 3, which particularly focuses on family relationships, will return to these findings and examine the possible processes within the sibling relationship that facilitate this behavioural resemblance.

Overall, although research on sibling influence is a relatively new area of interest, several studies have established correlations in siblings' alcohol and substance use and other deviant activities. However, it is important to know what other factors or social processes (beside gender and age) make adolescents susceptible to sibling modelling. Findings (e.g. Rowe & Gulley, 1992) on the influence of sibling interaction on sibling modelling of drinking behaviour are scarce. In Chapter 6, sibling conflict, sibling warmth and having mutual friends are therefore explored as moderators in the prediction of younger siblings' drinking from older siblings' alcohol use.

In summary, older siblings have been shown to influence younger siblings' alcohol use via their own use and also such active reinforcement as providing alcohol. Demographic aspects of the sibling dyad such as same sex and age similarity seem to increase sibling resemblance in alcohol consumption. Moreover, experiencing a warm sibling relationship and spending time with mutual friends has been shown to condition sibling similarity in substance use, thus facilitating the social learning of alcohol use among siblings. Sibling conflict moderated siblings' similar involvement in delinquent activities, its role for sibling alcohol use remains uncertain. Yet, a

sufficient evidence base is just emerging and further investigations on sibling influences are clearly necessary.

2.4. Limitations of Previous Research on Alcohol-Specific Family Factors

In relation to the reviewed evidence on social learning of alcohol use in parent-child and sibling dyads several limitations emerged, leaving gaps and inconsistencies in research. One of the strongest issues and stimulant for this investigation is the generalisability of findings. The vast majority of reported evidence is based on US research and Chapter 1 already addressed the different cultural context between the two countries in relation to alcohol use. Chapter 1 also pointed to the distinct lack of British research on alcohol-specific (and non-alcohol-specific, as later addressed in Chapter 3) factors and adolescent alcohol use within the normal population. In addition to this lack of research, British studies appear not to be keeping pace with American advances in terms of *choice of respondents* and *sibling designs*. Even the most recent studies on effects of parental alcohol use and norms rely on adolescents' perceptions only (e.g. Foxcroft & Lowe, 1997; Foxcroft et al., 1999). The argument has been made that found associations may be an artefact of the single respondent approach because the two measures were reported by the same person (see Sweeting, 2001 for discussion). American research increasingly employed multiple respondents (i.e. adolescents, parents, and siblings: e.g. Ary et al., 1993; Conger & Rueter, 1996; Rowe & Gulley, 1992) and therefore avoids some of these methodological controversies (see also Chapter 4).

Using family designs inclusive of siblings permits two ways of investigation: sibling influence models and parental effects on different siblings. *Older siblings as influences* on adolescent alcohol use have received hardly any attention in the UK (e.g. some anecdotal accounts derived from qualitative investigations reflecting adolescent perceptions: Kloep et al., 1999). Although only few American findings are available for some sibling factors such as sibling supply of alcohol/drugs and sibling attitudinal measures (e.g. Brody et al., 1998; Brook, Whiteman, et al., 1990; Needle et al. 1986; see also Ardelt & Day, 2002 regarding adolescent deviance), no British publications in this regard were found. Thus, further research on older siblings' modelling of alcohol use, attitudes, supply of alcohol and possible moderating factors is required. Similarly, few American studies examined sibling interaction as a facilitator for sibling modelling of behaviour, which did not especially focus on alcohol use. It is uncertain

whether these models would apply within the British context. Therefore, this study aims to explore the role of older siblings for their younger sibling's alcohol use regarding the outlined variables with Scottish families (see Chapter 6). This investigation thereby uses self-reports of two siblings in regard to their drinking behaviour, attitudes, provision of alcohol, and sibling relations (multiple informants).

In relation to the second way of analysing sibling designs, parental alcohol-specific effects that are known from between-family research can be examined from a *within-family perspective*. Parent-child-sibling designs are common in genetic studies (extended twin or adoption designs; e.g. Cleveland & Wiebe, 2003; Koopmans & Boomsma, 1996; McGue et al., 1996a), but their aims differ (focus on variance proportions for nature and nurture). The few psychosocial investigations that included both parents and siblings indicate that different siblings within a family may show differential susceptibility to mothers' and fathers' alcohol consumption (e.g. Conger et al., 1994; Duncan et al., 1996). These findings emerged rather unexpectedly since social learning processes have been formulated in relation to individual development and therefore do not account for within-family processes. Whether these results bear a systematic basis (e.g. depend on the developmental stage of older and younger sibling) or are sample-specific findings remains a question. Moreover, parental attitudes and drinking norms have not been investigated in terms of their effects on siblings' behaviour. Therefore similar questions as for parental alcohol use emerge in terms of both siblings being influenced by parental attitudes and norms for alcohol use. It may be possible that attitudinal measures are more or less important depending on the adolescent's developmental stage. Thus, this thesis will explore maternal and paternal drinking and attitudes/norms in relation to older and younger siblings' drinking behaviour (Chapter 6).

In this chapter, *gender* repeatedly appeared as an important factor in the social learning process of adolescent alcohol use. The focus on gender has varied within the different areas of social learning reviewed in the preceding sections. Moreover, the role of gender in these reviewed areas lacks clarity with regard to siblings within families. In relation to the parent-child transmission there is certainly no shortage of gender-specific findings, but their inconsistent nature demands replication. In contrast, parent and/or adolescent gender were not considered in the association of parental attitudes/norms and adolescent alcohol use. This thesis attempts (a)

to expand on this evidence base and to clarify the moderating role of gender for the relation between parental and adolescent alcohol use and (b) to explore the potential effects of gender for association of parental attitudes/norms and adolescent alcohol consumption (Chapter 6).

In addition to this traditional perspective on gender, sibling gender combination can be examined as a context for the normative standards mothers and fathers set for their individual children (see 'second-order effects'; Bronfenbrenner, 1979; McHale & Crouter, 1996). Some discussed evidence points to different experiences of male and female adolescents in terms of parental norms and attitudes which come from between-family comparisons. With the clear lack of research evidence in this area, this thesis explores sibling gender similarity as a contextual influence on norms and sanctions parents set for their children from a within-family perspective (Chapter 6).

Studies investigating sibling influence on adolescent substance use have also paid attention to the role of gender. Some authors considered gender as a moderator for sibling similarity in alcohol use (e.g. McGue et al., 1996a). Other findings are restricted to specific sibling gender combination groups for two reasons: a) limited sample (e.g. drug use and supply among brother pairs: Brook, Whiteman, et al., 1990) or b) significant relationships emerged only for certain groups (same-sex pairs only: Rowe & Gulley, 1992). Again, the aim here is to replicate and to expand existing findings to other sibling gender groups (Chapter 6).

The final issue concerns methodological aspects of these studies in terms of assessing alcohol consumption. For parental drinking, measures of frequency and/or quantity as well as problem drinking indexes are frequently used (e.g, Ary et al., 1993; McGue et al., 1996a). Adolescent alcohol use has also been assessed in various ways: as a status transition (e.g. non-user/user); in terms of frequency of use or drunkenness over a defined period of time; quantity; and problem drinking or alcohol-related problems (e.g. Ary et al., 1993; Conger & Rueter, 1996; Hellandsjø Bu et al., 2002; Peterson et al., 1994). More recently, some researchers have used composite measures of adolescent alcohol use which rely on several related aspects of young people's drinking behaviour (Foxcroft & Lowe, 1997; McGue et al., 1996a). The advantage of such composites is that they give a more comprehensive account of young people's alcohol consumption than single indicators do. Also, different measures of parents' and adolescents'

consumption may reflect different aspects of their alcohol use and may or may not be of differential salience for health education. Therefore, this thesis will consider a broad range of alcohol use indicators (see Chapter 4), allowing both the examination of specific behaviours and aggregated measures in the result sections of this thesis (Chapters 6 and 7).

2.5. Summary

Parental drinking behaviour and attitudes/norms have been related to adolescent alcohol use. Siblings have also been shown to influence their younger brother and sister's use of alcohol and other substances through their own use, attitudes and provision of the substance. However, several limitations of previous research were identified. They specifically relate to the lack of UK research in this area of parental and sibling alcohol-specific influences (few investigations, no sibling designs, single respondents) as well as to inconsistencies and limitations regarding the role of gender of parents and siblings. Based on the existing evidence and remaining gaps, the alcohol-specific family effects that are scrutinised in this thesis are summarised in the model shown in Figure 2.2.

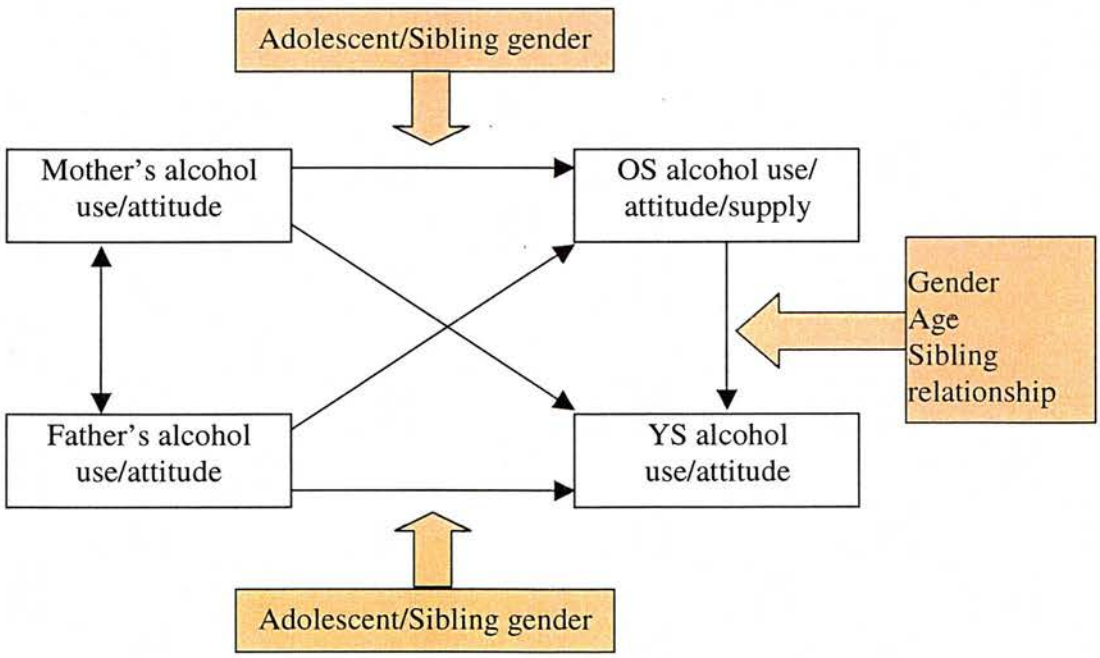

Figure 2.2. A social learning model of adolescent alcohol use within families: Parents, siblings, and moderators (OS - older sibling, YS - younger sibling)

The model depicted in Figure 2.2 proposes associations between parental and sibling alcohol-specific factors and adolescent alcohol use. Mothers and fathers' drinking behaviour and attitudes are related to older and younger siblings' alcohol use and attitudes within families. Gender of the adolescent siblings, indicated by the beige field and arrow, is considered in two ways: first, as a moderator in the relationship between mothers/fathers' drinking/norms and adolescent drinking; second, as a context for parents' setting of norms and sanctions regarding youthful alcohol consumption. In addition, older siblings' alcohol use, attitudes and provision of alcohol should predict younger siblings' alcohol use and attitudes. For these relationships the potential conditioning effect of several factors, as indicated by the beige field and arrow, is explored. These factors include siblings' demographic similarity (gender, age) and sibling relationship quality (warmth, conflict, mutual friends: based on Rowe & Gulley, 1992). The proposed associations and effects are examined in Chapter 6. Thereby it is relied upon family members' self-reported alcohol use and attitudes as well as adolescents' perception of parental norms and attitudes (see also Chapter 4). Overall, the establishment of associations between these family variables will contribute to our understanding of intrafamilial similarity in alcohol use.

CHAPTER 3
QUALITY OF FAMILY RELATIONSHIPS AND ADOLESCENT ALCOHOL USE

3.1. Introduction

The previous chapter considered evidence on alcohol-specific family factors in relation to adolescent drinking behaviour. The focus of this chapter is empirical findings on non-alcohol-specific family influences that have been related to alcohol use among adolescent siblings. It thereby draws upon a variety of theoretical perspectives and research developments as outlined in Chapter 1: family systems, stresses and strains, and siblings' differential rearing experiences. Similarly to research reviewed in Chapter 2, the parent-child subsystem has been the family subsystem receiving the greatest research attention in relation to young people's drinking behaviour (see Foxcroft & Lowe, 1991; Hawkins et al., 1992; Petraitis et al., 1995 for reviews). In contrast to the previous chapter, this chapter goes beyond dyadic relationships (parent-child, siblings) and follows the proposition of family systems perspective that individual development is best understood within the larger network of interdependent family relationships (Minuchin, 1985). Consequently, this chapter examines the linkages between aspects of marital subsystem (e.g. marital distress, spousal alcohol use), parent-child relations, the sibling relationship, and adolescent alcohol use. However, before the empirical findings for the specific links are provided, further general aspects of the complex interrelations of family subsystems need to be outlined.

3.2. Interlinked Family Subsystems

The parent-child relationship has clearly been established as a key influence on adolescent alcohol use and other adjustment measures (Collins et al., 2000; Foxcroft, 1996; Foxcroft & Lowe, 1991; Hawkins et al., 1992; Petraitis et al., 1995). However, the parent-child subsystem is embedded in and interwoven with other family subsystems such as the marital and sibling subsystem (family systems perspective: see Chapter 1). Although family systems theory proposes reciprocal associations between family subsystems (e.g. Minuchin, 1988), the interest here lies in the effect of the marital subsystem on the parent-child subsystem which then in turn

influences adolescent alcohol use. This decision follows an ecological perspective (Belsky 1984; Bronfenbrenner, 1986) whereby family factors can be distinguished by the degree of proximity to the children's everyday experiences into proximal, distal or contextual. *Proximal* factors refer to parental behaviours in interacting with a child. Parenting behaviours and the quality of parent-child relations are the most proximal factors in children's everyday experiences. *Distal* factors reflect dispositional characteristics of parents (here parental alcohol use) which affect child adjustment indirectly through disrupted parenting. *Contextual* factors relate to the quality of family relations (for this investigation the quality of marital relations). In contrast to distal factors, contextual factors can exert their influence on child outcome both indirectly and indirectly. Indirect pathways are through the quality of parent-child relations (e.g. Jodl et al., 1999). Direct influence can be exerted through modelling (acquisition of negative and coercive interaction patterns through observation; e.g. Bank et al., 1996) or by stress experienced during hostile marital interactions (e.g. Conger et al., 1991; Cummings & Davies, 2002). Thus, the importance of parent-child relations has further been stressed by its potential mediating role of the effects of parental alcohol misuse and marital distress on adolescent alcohol use (e.g. Jodl et al., 1999; Velleman & Orford, 1993 a, b) according to the stresses and strains on parenting perspective (see Chapter 1).

Evidence in support of such associations has been provided by conventional between-family designs (e.g. review by Cummings & Davies, 2002; Dekovič, 2002). Research has shown that siblings encounter different social experiences in their relationships with parents (Daniels & Plomin 1985; Hoffman, 1991; Plomin & Daniels, 1987). This evidence has pointed toward a closer examination of the parent-sibling subsystem in relation to adolescent adjustment (e.g. Reiss et al., 1995). Including a brother or sister into the design allows the exploration of siblings' unique experiences with parents in relation to adolescent alcohol use. Moreover, such a within-family perspective also permits examining the relations between distal and contextual family factors and siblings' parent-child relations. In addition, further attention can be drawn to siblings' relations with one another. The sibling relationship is associated with the parent-child relationship and may therefore also be affected from 'spill-over' effects of the marital subsystem (e.g. Erel, Margolin, & John, 1998; Margolin et al., 2004; Rinaldi & Howe, 2003). Sibling relations may play an important role for adolescents alcohol use (see also discussion in Chapter 2) as has been shown for other child adjustment measures (Bank et al., 1996; Branje,

van Lieshout, van Aken & Haselager, 2004; Brody, 2004; Harrison & Pike, Hetherington & Clingempeel, 1992; Hetherington et al., 1999; Schrepferman, Snyder, & Crompton, 2000). Then sibling relations could provide another family influence on adolescent alcohol use.

This chapter reviews linkages among parental alcohol use, marital relationship, siblings' parent-child relations, the sibling relationship and siblings' drinking behaviour. The suggested sequential links are summarised in Figure 3.1. In brief, Figure 3.1 suggests that the marital subsystem affects the parent-child subsystem (Belsky, 1984; Conger & Rueter, 1996; Cummings & Davies, 2002). Parent-child relations directly influence adolescent alcohol use (Foxcroft & Lowe, 1991; Hawkins et al., 1992; Petraitis et al., 1995). This association is approached from a differential parenting perspective. The sibling relationship is associated with the parent-child relationship and (possibly) with adolescents' alcohol use (indicated by the dashed arrow).

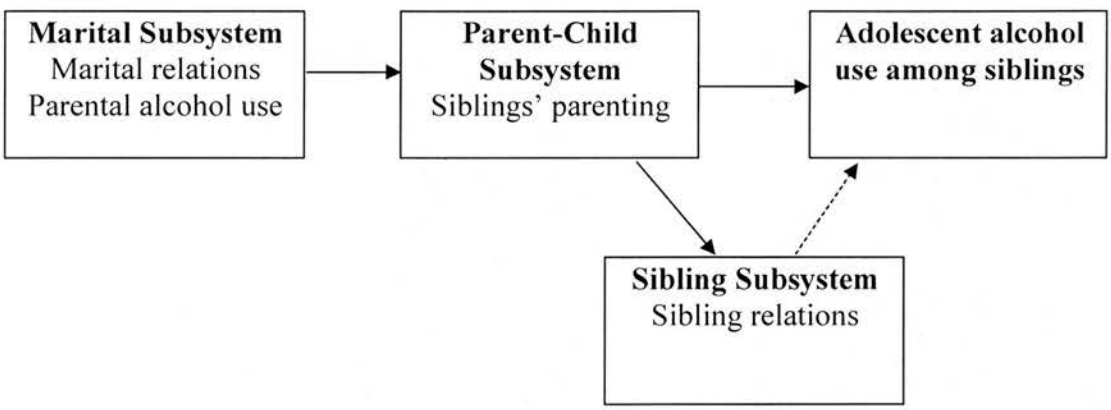

Figure 3.1. Links between family subsystems and adolescent alcohol use

Since the interest on siblings' different social environments within the same family is a rather recent development, only few studies on adolescent development have been published. One of the most comprehensive approaches was undertaken by the US American project *Nonshared Environment and Adolescent Development* (NEAD) (for details see Reiss et al., 1994, 2000). Because of its wider contextual perspective on the family, this study and its many publications (e.g. Hetherington et al., 1999; Mekos et al., 1996; Reiss et al., 1995, 2000) are repeatedly referred to in this thesis, particularly in this chapter. Models tested on the NEAD data focused on different adolescent adjustment measures including depressive symptoms, externalising

behaviours, social responsibility, and cognitive agency (Henderson et al., 1996; Jodl et al., 1999). This thesis attempts to replicate many findings from the NEAD project with a Scottish sample in relation to adolescent alcohol use as is outlined in this chapter and the corresponding results chapter, Chapter 7.

The following sections will review empirical evidence according to the sequential model provided in Figure 3.1. The first three sections centre on the parent-child subsystem. First, findings on marital relations and parental alcohol use as antecedents of siblings' parent-child relations are discussed. In the following section, general findings on parenting influence in relation to adolescent alcohol use resulting from between-family research are recaptured. In the third section, these associations are revisited from a differential parenting perspective whereby it was inevitable to draw on findings regarding other outcome measures due to scarce alcohol research. Thereafter, a stronger focus is taken on the sibling subsystem. The sibling relationship is examined in terms of its association with parent-child relations and in its role for adolescent outcome. The final section then summarises the limitations of previous research on non-alcohol-specific family factors and adolescent alcohol use and outlines the present investigation. The investigation itself, inclusive of research questions and specific working hypotheses, is reported in Chapter 7.

3.3. Parental Alcohol Use and Marital Distress as Stresses on Parent-Child Relations

There is extensive research literature on marital problems and parental alcohol misuse as independent research areas as well as efforts investigating their interrelation (clinical and community populations; e.g. Cummings & Davies, 2002; Dunn et al., 2002; Margolin et al., 2004; Steinglass, Bennett, Wolin, & Reiss, 1987; Velleman & Orford, 1999). However, the review here is very selective and will only discuss the few findings relevant for the present study. Research efforts have established an association between parental drinking behaviour and marital distress/quality. Yet, it is beyond the scope of this chapter to explore the complex interrelations between the two factors (for a summary see Roberts & Leonard, 1997). The essential aspect for this thesis is the positive association that has been established between parental alcohol use and marital distress without specifying any direction of effects (see Chapter

7). Therefore, mothers and fathers who report increased alcohol consumption and problem drinking would also present more marital difficulties.

In turning to *parental alcohol use* as an antecedent of parent-child relations, research has demonstrated that alcohol misuse and addiction are related to child maltreatment and neglect (e.g. Dunn et al., 2002; Forrester, 2000), disruption of family rituals (e.g. Steinglass et al., 1987), and negatively affect the quality of the parent-child relationship (see Velleman & Orford, 1999 for review). In community and at-risk samples, parental alcohol and drug problems have been shown to disrupt effective parenting and to make hostile, coercive, and inconsistent interactions between parent and child more likely (Conger & Rueter, 1996; Conger et al., 1994; Galaif et al., 2001; Velleman & Orford, 1993 a, b). A parent's drinking problems can even effect both this parent's and the spouse's child-rearing behaviours (Conger et al., 1994). UK research, for example, has demonstrated an influence of parental drinking problems on offspring's (aged 16-35) adjustment problems during childhood and adulthood (Velleman & Orford, 1993a, b, 1999). This influence, however, was mediated by family disharmony characterised by violence, arguments, lack of cohesiveness of parental and family relationships. Thus, the effect of parental drinking on parenting in a community sample deserves attention (Chapter 7).

Similarly, a large number of studies have established a link between marital and parent-child relationships (e.g. Davies & Cummings, 1994; Hetherington, 1989). A positive *marital relationship* appears to provide emotional and instrumental support and promotes psychological well-being and competent parenting of the spouses (Belsky, 1984; Cowan, Cowan, & Schulz, 1996). In contrast, higher levels of marital distress have been related to: disruption in authoritative parenting; greater negativity/conflict and hostility in the parent-child relationship; and decreases in parental responsiveness and support (Almeida, Wetherington, & Chandler, 1999; Harold & Conger, 1997; Harold, Fincham, Osborne, & Conger, 1997; Jodl et al., 1999; Margolin et al., 2004; Sturge-Apple, Davies, Boker & Cummings; 2004; see also Cummings, 1994; Cummings & Davies, 2002 for reviews). Such a 'spill-over' effect from marital quality to parenting quality has also been observed to the quality of sibling relations (see Brody & Stoneman, 1994; Furman, 1995 for a review; e.g. Brody & Stoneman, 1987), possibly mediated

through parent-child interaction (Cummings & Davies, 2002; Jodl et al., 1999). This thesis will examine the interrelation between marital and parent-child relations (Chapter 7).

In general, these findings from between-family research indicate that parental alcohol use and marital distress and problems can take their toll on effective parenting efforts and make hostile, coercive, and inconsistent parenting more likely. Yet, the question remains whether each sibling's relationship with a parent is affected similarly facing such objectively shared factors at the level of the family environment. Very few studies on this matter were found in researching this thesis. One hypothesis tested was originally proposed by Reiss et al. (1994): marital conflict may draw one child into the marital relationship and therefore promote differential treatment where one child is favoured (e.g. parent-child coalition) and another is 'scapegoated'. Henderson and colleagues (1996) did not confirm this hypothesis and concluded that marital conflict, as well as parental depression, is an unlikely candidate for causing differential warmth, negativity, or control. Rather, marital conflict and depression were related with higher parental negativity and lower warmth for both of their children. In contrast, McHale, Crouter, McGuire and Updegraff (1995), however, found more negative ratings of their marriage by both mothers and fathers when one parent favoured a child but the other did not. More recently, Jenkins et al. (2003) also demonstrated that in families characterised with marital dissatisfaction children were treated more differentially. Thus, the few existing findings are rather inconsistent, which may be due to the different methodological approaches. For example, McHale et al. (1995) explored the synergistic pattern of mother's and father's differential treatment. In terms of the influence of parental alcohol use on siblings' parent-child relations no studies were found. Acknowledging this scarce evidence, within this thesis parental alcohol use and marital distress are explored as influencing parenting behaviours towards both siblings (Chapter 7).

Overall, both parental alcohol use and marital distress, which appear to be interrelated, seem to take their toll on parent-child relations. They have been found to disrupt effective parenting practices and to increase the likelihood of harsh, inconsistent and hostile interactions between parent and child. These associations emerged in clinical as well as in community samples. Yet, when examining the effects of parental drinking and marital distress/problems on the parent-child relations of siblings, very few but inconsistent findings emerged. This clearly shows the need for further investigations in this area. In contrast to the scarcity of evidence in this area,

there is no shortage of studies examining the effects of parent-child relations on adolescent alcohol use. These findings are discussed in the following section.

3.4. The Effect of Parent-Child Relations on Adolescent Alcohol Use

Several aspects of the parent-child relationship have been related to adolescent alcohol use (Foxcroft & Lowe, 1991; Hawkins et al., 1992; McFarlane et al., 1995; Petraitis et al., 1995; Steinberg, 2001; Sweeting, 2001). Based on conventional between-family research, specific parenting behaviours such as parental warmth, conflict, control/discipline, and monitoring have been linked with youthful alcohol use (Foxcroft & Lowe, 1991; Hawkins et al., 1992; Petraitis et al., 1995). In addition, parenting style, which represents a pattern of supportive and controlling behaviours, has also been considered in studies.

Warm and supportive family environments appear to reduce alcohol and substance use and generally tend to protect against deviant developmental outcomes (Baumrind, 1991; Duncan, Duncan & Hops, 1994; Foxcroft, & Lowe, 1991; Guilamo-Ramos, Turrisi, Jaccard, Wood & Gonzalez, 2004; Hellandsjø Bu et al., 2002; Mason & Windle, 2001; Steinberg, Mounts, Lamborn, & Dornbush, 1991; Wood et al., 2004). Parental warmth and support have been related to a reduced likelihood of initiating drinking and lower consumption in terms of lower frequency and lower quantity (Foxcroft & Lowe, 1991; Gerard & Buehler, 1999; Hawkins et al., 1992; Mason & Windle, 2001; Petraitis et al., 1995). Lack of parental support also predicted increases in substance use over time (Stice & Barrera, 1995). The warmth/support dimension contains such aspects as affection, closeness, and involvement in joint activities (e.g. Foxcroft & Lowe, 1991; Reiss et al., 1994).

At the level of parenting styles, *authoritative parenting* has received great interest. This combination of high levels of parental warmth and support with the setting of clear age-appropriate norms and guidelines for acceptable behaviour has consistently been proven as beneficial for adolescent adjustment (Lamborn, Mounts, Steinberg, & Dornbush, 1991; Steinberg, 2001, 2002; Steinberg et al., 1991). Indeed, youngsters from authoritative homes show less alcohol and drug involvement than their counterparts raised with different parenting styles (Baumrind, 1991; Cohen & Rice, 1997; Lamborn et al., 1991; Simons-Morton, Haynie,

Crump; Eitel & Saylor, 2001). Thus, guidance within a warm and supportive climate helps adolescents to regulate their own behaviour.

In contrast, *harsh/inconsistent discipline* and *parent-child conflict* seem to be associated with increased adolescent substance use and behaviour problems (Conger & Conger, 1994; Conger & Rueter, 1996; Foxcroft, & Lowe, 1991; Gerard & Buehler, 1999; Hawkins et al., 1992; Petraitis et al., 1995). Adolescents raised with such parenting behaviour are more likely to have initiated alcohol use and to consume alcohol more frequently and more excessively. Such negative parent-child interaction characterised by punitive, harsh and/or inconsistent discipline, and conflict have also been termed parent-child conflict and negativity (Hetherington & Clingempeel, 1992; Hetherington et al., 1999; Reiss et al., 2000).

Monitoring has usually been defined as parents' knowledge of their children's whereabouts, friends and leisure time activities (Kerr et al.; 1999; Patterson & Stouthamer-Loeber, 1984). Lower levels of monitoring have been related to increased levels of alcohol and drug use (Aseltine, 1995; Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003; Kerr et al., 1999; Rail et al., 2003). Adolescents who are less monitored also increase their use of substances over time (Fletcher, Darling, & Steinberg, 1995). Low monitoring has further been associated with having substance using peers (Chassin et al., 1993) and in general being involved in deviant activities (e.g. delinquent behaviour, drug use, sexual risk-taking) (Cottrell, Li, Harris, D'Alessandri, Atkins, Richardson & Stanton, 2003; Huebner & Howell, 2003; Kerr & Stattin, 2000; Kerr et al., 1999; Patterson & Stouthamer-Loeber, 1984). During adolescence, monitoring becomes increasingly important because children spend more time with peers and less time under direct supervision of parents or other adults (e.g. Patterson & Stouthamer-Loeber, 1984). Thus, monitoring reflects a key parenting practice in relation to adolescent drinking.

These largely American findings have also been confirmed within the UK context. Family conflict and support, control and level of joint activities as well as parenting style were associated with frequency of alcohol use, usual consumption and drunkenness (Foxcroft & Lowe, 1995, 1997; Glendinning, 1998). A longitudinal study on adolescent alcohol use in Scotland (Shucksmith et al., 1997) showed that perceived unsupportive family environments with extremes of parental control (either high or low levels of control) were associated with

increased levels of alcohol use two years later. Moreover, findings from the 1999 ESPAD study showed that parents' knowledge of their child's whereabouts on a Saturday night was the strongest factor in predicting alcohol, tobacco, and drug use compared with family structure and satisfaction with relationship with mother and father (Ledoux, Miller, Choquet, & Plant, 2002).

Yet, despite replicating American findings in UK research, there is cultural variation in parenting behaviours. For example, Devereux (1970) compared the variation of cultural norms regarding support and control in families and found that British families provided noticeably less support and looser control than their American (and German) counterparts. The more recent ESPAD data also indicate that French parents were significantly better informed where their children spend Saturday nights than their British counterparts (Ledoux et al., 2002). Considering such differences in level of parenting behaviours between countries (i.e. cultures; see also Shakib et al., 2003) examining the role of family factors in relation to alcohol use among Scottish adolescents is a worthwhile endeavour.

Further clarity is needed regarding the role of mothers and fathers for adolescent outcome in general considering the controversial findings on parenting (see also Chapter 2). Some researchers discovered similar processes for mothers' and fathers' parenting in affecting adolescent adjustment (e.g. Jodl et al., 1999; Neiderhiser, Pike, Hetherington, & Reiss, 1998). Others demonstrated differences in processes involving mother and father (e.g. Feinberg & Hetherington, 2001). Findings remain inconsistent with some attributing greater salience to the role of fathers due to their relative lower availability for their children (Brody et al., 1992; Feinberg & Hetherington, 2001). In contrast, others emphasise the importance of mothers based on her stronger primary caregiver role and the greater deviancy attributed to female drinking (Brook, Brook et al., 1990; Conger et al., 1994). Brook, Brook and colleagues (1990) provide evidence for greater maternal salience regarding adolescent substance use in terms of time spent with child, setting clear requirements for mature and sensible behaviour, use of appropriate control techniques and control through guilt. Thus, this thesis will pay attention to both mothers' and fathers' parenting in relation to adolescent alcohol use (see Chapter 7).

Another issue relates to methodological aspects of research, in particular to the *source of information* on parent-child relations (i.e. who reports on them). Differences in the emergence

of associations between parenting and adolescent adjustment may depend on whether parent or child reported on the parent-child relationship. Parents and adolescents differ in their reports of level of parenting and agree only moderately (Cohen & Rice, 1997; Cottrell et al., 2003; Paikoff, Carlton-Ford, & Brooks-Gunn, 1993; Schwarz, Barton-Hendry, & Pruzinsky, 1985; see also Chapter 5). For example, in Cohen and Rice's (1997) study, adolescents perceived their parents as less authoritative, less permissive, and more authoritarian than parents considered themselves (see also Cottrell et al., 2003 for monitoring and adolescent risk involvement). Moreover, only adolescents' perception of lower authoritativeness and higher permissiveness, but not parents' report, were associated with adolescent self-reported alcohol and tobacco use. Some argue that the stronger association between child reported parenting and adjustment is a result of the single respondent approach (e.g. Kandel, 1996; Sweeting, 2001). This means, the relationship may only have emerged because the same individual reported both environmental factors and outcome. British research relied almost exclusively on adolescent reports of their own drinking behaviour and perceptions of the rearing environment due to school-based data collection (e.g. Foxcroft & Lowe, 1995, 1997; Shucksmith et al., 1997). These studies may be methodologically compromised.

One way to approach this problem was to create composite measures aggregated across reporters (parent, child, and observer; e.g. Hetherington et al., 1999; Mekos et al., 1996; Reiss et al., 1995). However, others have criticised such composite measures may be meaningless statistical constructions and reflect nobody's experience (Cox & Paley, 1997). An alternative is the 'cross-rater' method (e.g. Feinberg & Hetherington, 2001) where parents' and adolescents' reports of parenting are related to adolescent drinking separately in repeated analyses. The emergence of significant associations for both parents and adolescents' perspectives will give stronger credit to the findings (see also discussion in Chapter 8). In Chapter 4 these methodological issues of respondents are further discussed. The cross-rater method is considered in Chapter 7.

Instead of viewing children's perception of parental behaviours as a method confound, others have regarded them as children's construction of reality which are valid in their own right (e.g. Bronfenbrenner, 1979; McHale & Crouter, 1996; Reiss et al., 2000). In this respect, children's perception of their relationship with parents may serve as mediators of parental reports of the

very same relationship on adolescent adjustment (e.g. Harold et al., 1997; Neiderhiser et al., 1998). For example, Neiderhiser et al. (1998) have demonstrated that adolescent perceptions of parent-child conflict/negativity partially mediated the relationship between parental conflict/negativity and adolescent antisocial behaviour. Thus, this thesis will consider both the perspectives of parents and adolescents on their relationship with one another. Chapter 5 examines the agreement between different family members regarding the same aspect of the family environment. The mediation hypotheses itself will be tested in Chapter 7.

Although this review concerned the main effects of parenting on adolescent alcohol use, two further issues remain. First, it should be acknowledged that parenting behaviours may condition younger siblings' vulnerability to older siblings' influence. For example, Conger et al. (1994) demonstrated that harsh/inconsistent parenting made younger siblings even more vulnerable to the negative influence of older siblings. In contrast, nurturant/involved parenting increased early adolescents' resilience to older siblings' behaviour. This also lends support to the family systems perspective where the effect of one family member's (sibling) behaviour on the adolescent depends on the quality of the parent-child subsystem. It further underpins the complexity of family influence, but this type of interaction is not investigated here. Second, socialisation is understood as a bidirectional and not unidirectional process (Schaffer, 1999; Stattin & Kerr, 2005). Research has shown that the individual child contributes to the parenting he/she receives (child effects; e.g. Belsky, 1984). Thus, although not tested in this thesis, parental behaviour should at least in part be understood as a response to their offspring's alcohol/substance use (Conger & Rueter, 1996; Stattin & Kerr, 2005; Stice & Barrera, 1995).

In summary, parental warmth and authoritative parenting style have been related to lower alcohol consumption, while conflictual and coercive parent-child relationships have been associated with higher alcohol use among adolescents. In addition, parental monitoring emerged as an increasingly important factor in relation to adolescent alcohol use, problem behaviour and involvement with deviant peers. Both parents' and adolescents' view of their relationship need to be considered. In fact, adolescents' perceptions of the parent-child relationship may function as at least partial mediators of parenting effects on drinking behaviour. Overall, parenting behaviours have been related to adolescent drinking behaviour across families.

As mentioned earlier, these reported findings originate from conventional between-family studies and are therefore only conclusive of the child-specific environment (Hoffman, 1991; Wachs, 1995, regarding 'environmental specificity', p. 90). These factors identified across families deserve further scrutiny in this study regarding their salience for processes within families (see Chapter 7). Plomin and Daniels (1987) remarked that "environmental factors that create differences within families can act independently of factors that cause differences between families" (p. 7). Within-family variation has been demonstrated for measures of parent-child relations (e.g. Hetherington et al., 1999). Yet, it is not known whether these relationship measures are salient regarding adolescent alcohol use from a differential parenting perspective. Thus, it is essential to draw upon findings of the effect of siblings' differential experiences with parents on other adjustment measures which are discussed in the following section.

3.5. Differential Parenting and Siblings' Alcohol Use

Environmental differences within the family have been related to adjustment differences in pairs of adolescent siblings (e.g. Daniels, Dunn, Furstenberg, & Plomin, 1985; Henderson et al., 1996; Tejerina-Allen, Wagner, & Cohen, 1994). Differential parenting is conceived as an objectively and functionally nonshared environment (see Chapter 1). Not only do parents treat their children differentially (Hoffman, 1991; McHale et al., 1995; Tucker, McHale & Crouter, 2003), children report more differential treatment than their parents (Daniels et al., 1985). Children and adolescents are extremely aware of and sensitive to differences in their sibling's relationship with a parent (Dunn, 1992; Plomin & Daniels, 1987). The immense salience of child-sibling-parent relations is well captured by Brody (2004):

> *Having a sibling creates a context in which parental behaviour assumes symbolic value, as children use it as a barometer indicating the extent to which they are loved, rejected, included, or excluded by their parents.* (p. 125)

Objectively and subjectively differential experiences with parents may consequently have differentiating effects on siblings' development (Feinberg & Hetherington, 2001; Turkheimer & Waldron, 2000). Indeed, differential warmth and differential conflict/negativity have been related to such diverse adolescent adjustment measures as depression, antisocial/problem

behaviour, social competence, delinquency, etc. (Anderson et al., 1994; Conger & Conger, 1994; McHale & Pawletko, 1992; Mekos et al., 1996; Reiss et al., 1995). Unsurprisingly, the "preferred" sibling seemed to benefit in regard to individual well-being, whereas the child receiving the less favourable treatment exhibited more adjustment problems (Conger & Conger, 1994; McHale et al., 1995; McHale & Pawletko, 1992).

Two analytical approaches to differential parenting have been widely used in the literature and provide different information. The 'covariance model' model investigates the parenting towards Sibling 1 in relation to Sibling 1's adjustment (termed '*specific effect*'). Thereby the parenting toward Sibling 2 in influencing Sibling 1's adjustment (termed '*cross effect*') is taken into account simultaneously (see Feinberg & Hetherington, 2001; Feinberg, Neiderhiser, Simmens, Reiss, & Hetherington, 2000; Reiss et al., 1995). Here, the absolute level of parenting toward each child is considered. The '*difference score model*' uses a measure of the differences in parenting that siblings receive (e.g. Conger & Conger, 1994; Mekos et al., 1996; Monahan, Buchanan, Maccoby, & Dornbush, 1993). Such discrepancy/difference scores (e.g. older sibling – younger sibling) are a straightforward approach for measuring siblings' differential experience (see Chapter 7 for further detail). They are either related to absolute levels of adjustment or a difference score on sibling outcome. Both models represent the same relations but in different ways. The following review discusses findings based on these two analytical approaches. However, there is a substantial lack of studies focusing on adolescent drinking. Even within the key reference, the NEAD study, adolescent alcohol use only featured as part of a problem behaviour index in one research report (Mekos et al., 1996). Thus, despite growing research activity on differential parenting, it was possible only to consider evidence on other outcome measures (e.g. depression, problem behaviour) and not directly on alcohol-related behaviour.

In relation to child-specific and cross effects of parenting, it was shown that parenting directed to the child was the best predictor of this child's adjustment (Anderson et al., 1994; Feinberg et al., 2000; Reiss et al., 1995; for discussion see O'Connor, 2002). For example, Reiss and colleagues (1995) demonstrated that negativity and conflict as well as warmth and support directed to a particular child had a strong relationship with this child's antisocial behaviour and depression. Such child-specific effects are detectable with conventional designs (see previous section on alcohol-focused findings). What makes a family design with siblings so important is

evidence of cross effects (i.e. parenting of a sibling influencing another child within this family). In a design with two siblings, two combinations of child-specific and cross paths are possible: the fore signs of the paths coefficients are either in the same direction or in the opposite direction. Effects of the sibling's environment in the opposite direction to those of the adolescent's environment are a clear indication of nonshared environment (Turkheimer & Waldron, 2000) and are therefore of foremost interest here. Reiss and colleagues (1995) found support for such a specific socialisation effect and termed it the '*sibling barricade*'. The authors summarised their finding in the following way: "The *more* harsh, aggressive, explosive, inconsistent, ineffective, and preoccupied behaviour is shown toward the sibling, the less psychopathologic outcome is seen in the adolescent" (pp. 934-935). Feinberg et al. (2000) confirmed the paradoxical 'sibling barricade' effect for such diverse measures as depression, antisocial behaviour, social responsibility, and cognitive agency. They also discovered a moderating influence of level of differential parenting on the effect of the cross path.

The 'sibling barricade' effect has been discussed in terms of parent-driven influence (see Feinberg et al., 2000) where parents may try to "salvage" the child with the least adjustment problems by providing this child with more adequate parenting. A second explanation is offered by 'sibling de-identification' (e.g. Schachter, 1982), locating the dynamic within the siblings' relationship. Feinberg et al. (2000) as well as Reiss et al. (1994) suggest that observing problematic behaviour in one's sibling (e.g. depression) may make the adolescent strive for better adjustment (e.g. to be happier). An example for alcohol use could be that an adolescent who is exposed to his sibling's drinking excesses and the related negative consequences decides to drink more sensibly (e.g. infrequent, small to moderate amounts). This stresses the importance of social comparison processes for siblings' experiences within the family and regarding their developmental outcome (Feinberg et al., 2000 provide an excellent discussion; see also Reiss et al., 1994). Yet, both reports of the 'sibling barricade' effect (Feinberg et al., 2000; Reiss et al., 1995) are based on the same data set (NEAD). Furthermore, this effect still needs to be demonstrated for adolescent alcohol use.

In contrast to the presented studies so far, some investigations approached differential parenting with the difference score model. Only three studies using this methodological approach concerning adolescent substance use or problem behaviour, inclusive of alcohol use, were found

in searching for this thesis (Conger & Conger, 1994; Mekos et al., 1996; Monahan et al., 1993). Their findings are examined here in detail. For example, Monahan and colleagues (1993) explored environmental differences in relation to siblings' substance use in a sample of adolescents from divorced homes. They demonstrated that larger differences in parent-child conflict were related to larger differences in siblings' substance use. Mekos et al. (1996) investigated differences in the rearing environment in relation to sibling differences in problem behaviour (delinquency, alcohol and marijuana use) separately in nondivorced, remarried and stepfamilies (NEAD project). Significant relationships emerged between siblings' differential problem behaviour and differential paternal warmth/support in nondivorced and remarried families. In stepfamilies they found further associations with differential conflict/negativity and differential monitoring/control.

The NEAD project further included a measure on siblings' exposure to marital discord. Children may directly be brought into the marriage but may be differentially exposed to and involved in marital conflict (see Reiss et al., 1994). For example, one child may be more involved in conflicted exchanges between the parents than the other. Siblings within a family may therefore experience their parents' marriage differently. Mekos et al. (1996) found a significant link between differential exposure to marital discord and differences in siblings' problem behaviour across all family types. The adolescent experiencing less paternal warmth/support or monitoring/control but greater conflict/negativity and frequent exposure to marital discord showed more problem behaviour relative to their sibling (Mekos et al., 1996).

The third study used a longitudinal design to examine the link between differential parental hostility and siblings' differential delinquency in a sample of two-parent families. Conger and Conger (1994) demonstrated that both mothers' and fathers' differential hostility had a significant effect on siblings' differential delinquency two years later after controlling for initial differences in delinquency. Again, the child receiving relative more hostility than the sibling exhibited more delinquency. Thus, the three studies using the difference score approach converge in the finding: the adolescent receiving the more favourable treatment relative to the sibling shows lower substance use or problem behaviour. However, despite this overlap of results, there are differences in relation to the populations sampled (intact, divorced, and remarried families) and sibling gender combination.

Overall, the findings on differential parenting strengthen the case that siblings encounter different intrafamilial environments which have differentiating effect on siblings' outcome, although the magnitude may be small (see meta-analysis by Turkheimer & Waldron, 2000). Based on the covariance model, child-specific parenting appears to be the best predictor of adolescent (mal)adjustment. In addition, sibling's rearing environment seems to influence adolescent outcome in form of the 'sibling barricade' effect: parenting directed toward the sibling produces opposite results in the adolescent. This may reflect parental protective mechanisms or sibling comparison processes. Studies utilising the difference score approach also converged in the finding that the adolescent receiving the less beneficial parenting relative to his sibling showed the worse outcome relative to this sibling. The evidence further suggests that parental variables identified in between-family research (monitoring, warmth/support, and conflict/negativity) matter as well within families. Moreover, differential exposure to marital conflict emerged as a predictor of differences in siblings' problem behaviour. Inconsistencies in findings may be based on sample differences. However, with the clear lack of focus on adolescent alcohol use as an outcome measure, the reviewed findings may only allow speculation of possible relationships. Therefore, both the covariance model and the difference score model are employed in exploring differential parenting as a predictor of absolute drinking levels and siblings' differences in alcohol use in Chapter 7.

So far, the sections focused primarily on the parent-child subsystem in terms of its antecedents (e.g. marital relations, parental alcohol use) and its effects on adolescent alcohol use (from a between-families approach to a within-family perspective). Although the issues of siblings within families became more prominent in this chapter (e.g. see differential parenting), the next section examines the sibling subsystem more closely. This includes a brief summary of the importance of sibling relations in general, its association with the parent-child subsystem, and its' role in adolescent alcohol use.

3.6. The Sibling Relationship

The sibling relationship plays an important part in the social, emotional, and behavioural development of children and adolescents (Boer & Dunn, 1992; Branje et al., 2004; Brody, 1996; see Brody, 2004 for review). From an early age on, children are not only very sensitive to their

own interaction with a brother or sister but also to parents' interaction with a sibling (Dunn & Kendrick, 1982; see Brody, 2004; Dunn & Plomin, 1991, and Dunn, 1992, for review). Older siblings often meet care-giving roles for their younger siblings and the sibling relationship is rather asymmetrical (e.g. nurturance and dominance towards younger sibling; Brody, 2004; Buhrmester & Furman, 1990). During adolescence sibling relations, similar to parent-adolescent relationships, undergo change. They become more egalitarian and both sibling conflict and sibling warmth decrease, while levels of empathy remain the same (e.g. Anderson, 1999; Buhrmester & Furman, 1990; Scharf, Shulman & Avigad-Spitz, 2005).

The quality of sibling relations has been associated with the quality of parent-child relations. Similar to congruence in marital and parent-child relationship quality, sibling hostility and rivalry are related to lower parental warmth and parent-child negativity (Brody et al., 1992; Jodl et al., 1999; Rinaldi & Howe, 2003; Stocker & McHale, 1992). Sibling warmth and positivity are associated with parent-child warmth, direct positive parental behaviour, authoritative parenting and to low levels of parent-child negativity (Brody et al.; 1992; Jodl et al., 1999; Stocker & McHale, 1992). Unequal treatment of children by parents has been related to less harmonious, more negative sibling relations (Brody et al., 1992; Brody & Stoneman; 1994; McHale et al., 1995, McHale & Crouter, 1996). Siblings experience a more positive sibling relationship when they receive equal treatment from their parents (see Brody & Stoneman, 1994; Furman, 1995 for reviews). The work by Patterson and colleagues (social interactionism; e.g. see Bank et al., 1996; Patterson, 1984 for overview) has paid particular attention to the transmission of conflictual interaction patterns among family members. Coercive exchanges between parent and child are generalised to the sibling relationship. Siblings direct practising of coercive behaviours (e.g. non-compliance, aggression) and the resulting cascading negative reinforcement processes further maintain a negative family climate. Positive exchanges among family members may be transmitted and maintained in a similar manner (through social interactionism, generalisation to other contexts). This thesis will examine the association between parent-child warmth and negativity and sibling relationship quality (Chapter 7).

In addition, gender of family members emerged again as an important factor. Several researchers demonstrated differences in salience of mothers and fathers' parenting. For example, fathers' direct and differential parenting exerted its influence on sibling relations more

often than mothers' parenting (Brody et al., 1992; Stocker & McHale, 1992). These findings suggest greater salience to the role of fathers for sibling relations, possibly due to their lower availability to their children (Brody et al., 1992; see also Feinberg & Hetherington, 2001). Others reported no such differences (Jodl et al., 1999). Thus, these findings stress the importance for investigating the effect of mothers' and fathers' relationship with each sibling on sibling relations separately (see Chapter 7).

A second approach relates to sibling gender combination as a context for parent-child relations ('second order effects', Bronfenbrenner, 1979; see also Chapters 1 and 2). This refers to the parenting that children receive in a family as being determined by the constellation of sibling gender. Children's characteristics were found to play an important role for differential parenting (e.g. Henderson et al., 1996). For example, a design decision in the NEAD project was to not include mixed-sex siblings to avoid differences in parenting that are due to gender differences in siblings (Reiss et al., 2000, p. 108; see also different socialisation goals for males and females in Chapter 1). However, very little evidence is available on the effects of sibling gender combination on parenting of siblings. The work by McHale, Crouter and colleagues on pre-adolescents and their families seems exceptional and provides stimulating insights. In one study they reported different effects of the presence of an opposite-sex sibling for some but not all family socialisation factors (Crouter et al., 1995). Having an opposite-sex sibling did not matter for the amount of monitoring the adolescent received. However, it affected adolescent involvement in "feminine" and "masculine" household tasks and involvement in dyadic activities with mother and father. Other research indicates that sibling gender combination modifies differential affection and amount of time spent with fathers (McHale et al, 1995; McHale & Crouter, 1996; Tucker et al., 2003). Thus, overall, very little indication is given as to what may contribute to differential parental treatment. The issue of sibling gender in relation to parenting certainly demands further exploration (see Chapter 7).

A further key interest in sibling relations is their impact on individual sibling adjustment, especially on adolescent alcohol use here in this thesis. Several studies found associations between the sibling relationship quality (conflict/negativity, warmth/positivity) and various adolescent adjustment measures (antisocial/externalising behaviour, social competence, social responsibility) (Anderson, 1999; Bank et al., 1996; Branje et al., 2004; Brody, 2004;

Hetherington & Clingempeel, 1992; Schrepferman et al., 2000). However, evidence is scarce in relation to adolescent alcohol or other substance use. Despite having established associations between sibling relations and adolescent outcome, specific mechanisms are unknown. Anderson (1999) concluded that the quality of sibling relations may be an important experience for the adolescent to display certain behaviours. For example, adolescents experiencing positive sibling relations may feel valued and perceive greater support and therefore may show more prosocial behaviour. In addition, Anderson (1999) also pointed out that "adolescents may directly socialize their siblings by providing guidance or information, setting and enforcing standards for behaviour, or serving as role models" (p. 123). This alternative seems to be the case for adolescent alcohol use and relates to the review of older siblings' influence in terms of modelling and reinforcement of alcohol use in Chapter 2. The role of the sibling relationship for young people's drinking behaviour is therefore not direct but rather appears as a moderating factor for processes that involve modelling and reinforcement.

Sibling relations may condition the similarity of alcohol use among siblings in a similar way as has been shown for substance use (inclusive of alcohol use) and delinquency. Chapter 2 already introduced a study by Rowe & Gulley (1992) which is a key reference in this area. These researchers demonstrated that warm sibling relations and having mutual friends increased siblings' resemblance in substance use (see also Slomkowski et al., 2005). The close emotional relationship may increase the value of siblings as role models and therefore their willingness to imitate each other's behaviour. Closer siblings may be involved in more similar activities, which may create mutual opportunities for deviant behaviour. In more practical terms, when siblings get on well with one another, one sibling may pro-actively recruit the other sibling into alcohol use and reinforce behaviour for example through the provision of alcohol (Brook, Whiteman et al., 1990; Needle et al., 1986). Being involved with the same peers might increase opportunities for alcohol use. Furthermore, it exposes either sibling to similar levels of peer influence (i.e. peer modelling) because adolescents commonly consume alcohol in each other's company (Harnett, Thom, Herring, & Kelly, 2000; MacAskill, Cooke, Eadie, & Hastings, 2001; Pavis et al., 1997). With its strong reference to the co-offending research (e.g. Reiss & Farrington, 1991) this type of sibling influence has been labelled '*partners in crime*' (Slomkowski et al., 2001).

As Chapter 2 showed hostile-coercive sibling relations can also increase sibling similarity in delinquency (Slomkowski et al, 2001). The processes involved here are different and draw on Patterson et al.'s research on antisocial boys (e.g. Bank et al., 1996; Patterson, 1984). Children acquire coercive interaction styles through observation of hostile parent-child interaction and direct practising of coercion with siblings. Such behaviours are also practised outside the home, leading to deviant peer groups for siblings and resulting in the development of further problem behaviours, which may include age-inappropriate alcohol use. In brief, the conflictual relations between the siblings draw them into deviant peer groups (Slomkowski, Wasserman, Shaffer, Rende, & Davies, 1997) where they maintain and advance their problem behaviour. As a consequence both siblings show similar levels of behaviour problems. This perspective has been labelled *'siblings as key pathogens'* (Slomkowski et al., 2001). The apparent incongruence of the two perspectives of sibling influence might be resolved by Slomkowski et al.'s (2001) reference to developmental processes that may provide a link between them:

> *... once early coercive experiences lead to relatively antisocial tendencies in adolescents, these tendencies can be positively reinforced or amplified by a sibling with similar tendencies, as siblings begin to enjoy committing delinquent acts together.* (p. 273)

These developmental changes in siblings' interaction are also influenced by the siblings' gender combination, starting in pre-adolescence (Dunn, Slomkowski, & Beardsall, 1994). For example, Furman and Buhrmester (1985) reported that being of similar sex and age promoted sibling relations to resemble friendships. This may further explain why the 'partners in crime model' was only significant among same-sex siblings regarding substance use (Rowe & Gulley, 1992). However, with no findings on the conditioning effect of siblings' social interaction on sibling similarity in alcohol use, this thesis examines the role of sibling warmth, conflict and having mutual friends. Because the influence is not assumed to be direct but a moderator effect on sibling modelling of alcohol use, its examination is embedded in Chapter 6 (and not in Chapter 7).

In summary, the sibling relationship reflects a further important socialisation influence for adolescent adjustment. The quality of sibling relations is associated with quality of parent-child relations; both show congruence in the climate in terms of warmth and conflict. The

combination of sibling gender was shown to influence some parenting practices but results were obtained from pre-adolescents. Although the sibling relationship seems to influence certain adjustment measures directly, its effect on adolescent alcohol use may be a conditioning effect on older siblings' modelling of the behaviour as shown for substance use and delinquency. Sibling warmth and having mutual friends may be more important than conflictual sibling interactions. With few (British) findings in this area, these associations are examined in Chapter 6 (sibling relationship as a moderator influence) and Chapter 7 (parenting influence, sibling gender).

3.7. Limitations of Previous Research on Non-Alcohol-Specific Family Factors

The review on the role of non-alcohol-specific family factors for alcohol use among adolescent siblings has outlined several limitations that are addressed in this thesis. These limitations refer to scarcity of certain strands of research, methodological issues and gender in the family context. Indeed, they reflect recurrent themes that have already been addressed to some degree in the previous two chapters.

In terms of *scarcity*, few studies considered in detail the family context in relation to child adjustment in general or specifically for adolescent alcohol use (e.g. Conger et al., 1994, 1995; Henderson et al., 1996; Hetherington et al., 1999). A more comprehensive family system perspective, relating child adjustment to marital, parent-child, and sibling subsystem, was applied to the NEAD project in the USA (Henderson et al., 1996; Hetherington et al., 1999), which, however, did not examine sibling alcohol use individually. Findings on differential parenting are restricted to other adjustment measures than adolescent alcohol use. At most, they allow assumptions regarding siblings' drinking behaviour and differential parenting, which demand investigation. Even fewer studies focused on family socialisation factors on adolescent alcohol use and misuse in the UK context (e.g. Foxcroft & Lowe, 1997; Foxcroft et al., 1999; Shucksmith et al., 1997). One British study took a comprehensive family perspective on adult offspring of alcohol abusing parents (e.g. Velleman & Orford, 1999). Such advances, however, are not reflected in research on 'normal' adolescent alcohol use nor has a British study on siblings' different intrafamilial environments during adolescence been published.

The present study will therefore investigate sibling alcohol use in relation to the parental alcohol use, marital, parent-child and sibling-subsystem. Within this complex network of intrafamilial relations conceptual and methodological approaches to differential parenting of siblings are examined. This comprehensive view of the family context should contribute to a better understanding of the within-family processes associated with adolescent alcohol use.

In *methodological* terms, British research on adolescent alcohol use relied almost exclusively on adolescents' perceptions of the rearing environment (Foxcroft & Lowe, 1995, 1997; Shucksmith et al., 1997). Issues of 'shared method variance' may restrict the validity of associations reported in these studies (Sweeting, 2001). To avoid these problems this study will use both parents' and adolescents' perspectives on the family environment (see discussion in Chapter 4). Examining the association between parents' and adolescents' view of family factors provides information how family members agree on these issues (examined in Chapter 5). Repeated analyses using parental and adolescents' reports of the family environment measures ('cross-rater' method; e.g. Feinberg & Hetherington, 2001) is then applied to circumvent the problem of 'shared method variance' (see Chapters 4 and 7). Furthermore, using multiple respondents for parenting measures allows the examination whether or not adolescents' perception of parenting functions as a mediator of parenting reports on adolescent alcohol use (see Chapter 7). This test of the mediation hypothesis may further strengthen the few existing findings and extend research in the UK context and for adolescent drinking behaviour.

Throughout this chapter *gender*-specific findings were reported. There is still a lack of clarity in terms of mothers or fathers being more salient for sibling relationship quality and child adjustment in general and for alcohol use in particular. There are conflicting reports of equal salience of mothers and fathers (e.g. Jodl et al., 1999; Neiderhiser et al., 1998) and differential importance of mother and father (e.g. Feinberg & Hetherington, 2001), drawing on mothers' stronger primary caregiver role and fathers' relative lower availability. This clearly demonstrates the need of further investigation of mother-child and father-child relationships because they constitute different subsystem within the family system (Minuchin, 1985). Research focusing on mothers only or aggregating across parents does not attend to the possible different features the relationship of mother and child or father and child may contain (e.g. Lamb & Lewis, 2004; Russel & Saebel, 1997). Therefore, following the tradition of other

research in regard to investigating relationships with mother and father *separately* (e.g. Brody et al., 1992; Brook, Brook et al., 1990; Conger et al., 1994; Feinberg & Hetherington, 2001) seems appropriate and is employed in Chapter 7.

At the child level, the focus is on sibling gender combination, as has already been highlighted in Chapters 1 and 2. The findings discussed in this chapter are more or less restricted by the attention paid to the gender combination of siblings. As with all NEAD reports, the findings are based on same-sex siblings with an uncertain value how applicable they are for opposite-sex siblings. Others did not consider sibling sex at all (e.g. Conger & Conger, 1994; Monahan et al., 1993). This differential attention to sibling gender may be related to different findings among the discussed studies. Moreover, research that specifically focused on sibling gender and parent-child interaction provided inconsistent findings and was undertaken on preadolescents and their younger siblings (Crouter et al., 1995; McHale & Crouter, 1996). This leaves the possibility of different associations emerging with adolescent siblings. Sibling gender similarity appears as a possible modulator of siblings' within-family experience and is therefore returned to in Chapter 7.

3.8. Summary

The discussed findings as well as their limitations and implications for the present study can be summarised in the complex theoretical model shown in Figure 3.2. Key studies informing the development of this model are the investigations by Hetherington et al. (1999), Henderson et al. (1996), Mekos et al. (1996), and Reiss et al. (1995). Although these studies did not investigate alcohol use, the processes investigated there are relevant to the present study.

From a family systems perspective, the development of individual adjustment can only be understood by taking the larger network of interdependent relationships within families into consideration (Cox & Paley, 1997; Minuchin, 1985). The theoretical model represents the linkages among various aspects of the marital, parent-child, and sibling relationship and adolescent adjustment. Siblings' alcohol use and their relationship with one another are predicted by the quality of the marital relationship, parental alcohol use and problems, and parenting quality. The role of the sibling relationship for adolescent alcohol use as a conditioning factor for social learning processes (not shown in Figure 3.2; see Figure 2.2) is

analysed in Chapter 6. So it does not receive attention in the corresponding result chapter, Chapter 7. Of particular interest in the link between parent-child relationship and adolescent alcohol use are parental monitoring, warmth/support, and conflict/negativity as well as exposure to marital discord. Individual siblings' alcohol use is related to their own parent-child relationship and that of their sibling (covariance model). Siblings' differential experiences with parents are associated with differences in drinking behaviour (difference score model), shown by the blue fields. The potential moderating influence of sibling gender combination is explored. However, it should be noted that the complex model is not examined simultaneously. Rather, as Chapter 7 will show, it was necessary to test parts of the model separately.

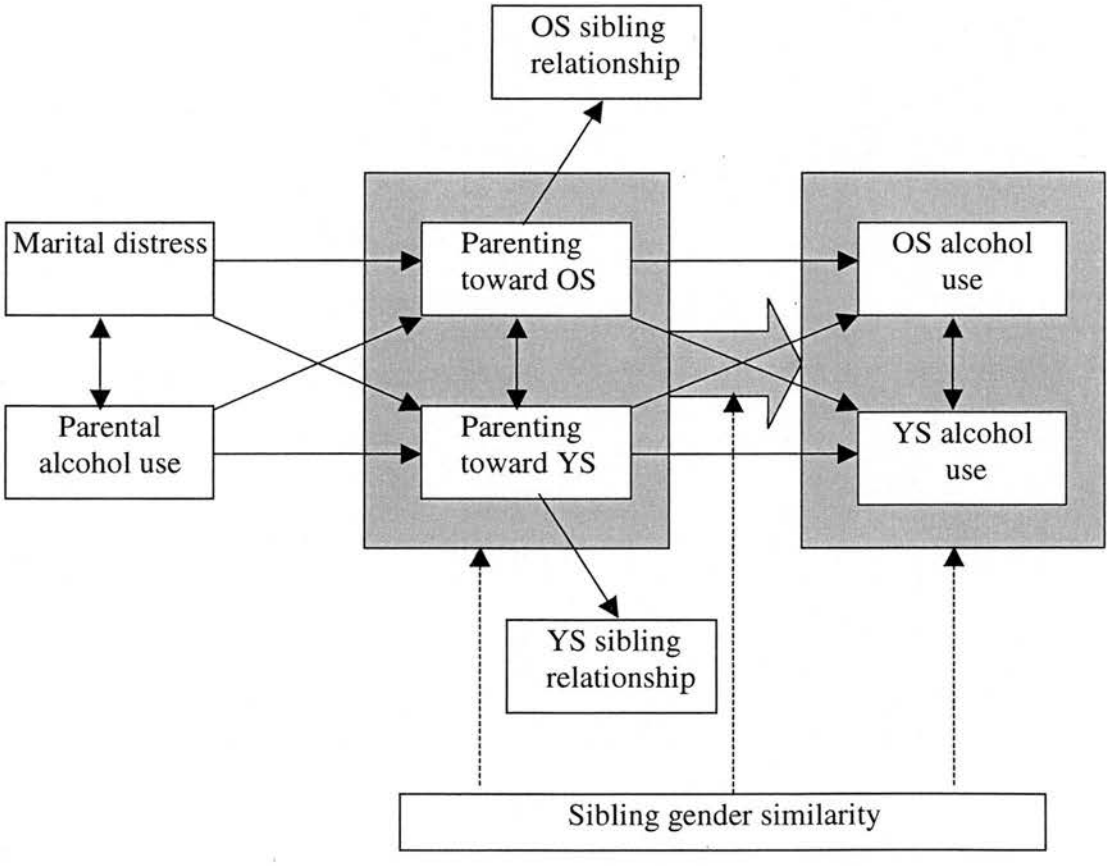

Figure 3.2. A theoretical model for predicting sibling alcohol use from family relations

Note: The model will be examined separately for mother and father.

(OS ... older sibling, YS ... younger sibling); blue fields represent effects of differential parenting on differential outcome; sibling gender similarity as a moderator

In conclusion, the proposed model on family system influences in relation to alcohol use among siblings is examined in Chapter 7. With the focus on the wider family context in this chapter and its relevant result section, it complements the evidence on the alcohol-specific environment which has been discussed in Chapter 2 and is examined in Chapter 6. Both main result chapters will be introduced by a summary of the reviews and the extracted research questions. Overall, the first three chapters introduced concepts and aspects of adolescent alcohol use and its correlates, the family environment associated with adolescent drinking. This and the previous chapter concluded in two models proposing effects of alcohol-specific and non-alcohol-specific family factors (Figures 2.2 and 3.2, respectively). Chapter 4 describes the methodological approach taken to investigate the proposed models.

CHAPTER 4

METHOD

4.1. Introduction

The previous chapters outlined both the broad aims of this thesis and specific models regarding the alcohol-specific and non-alcohol-specific family environment in relation to adolescent alcohol use. Moreover, these chapters indicated the age groups of adolescents that are of particular interest, type of alcohol use, family and other variables that need to be considered as well as who should report on these variables. The aim of this chapter is to introduce the methodological approach taken in this thesis. Both proposed models (Figures 2.2 and 3.2) are investigated with one study but examined using separate statistical analyses (Chapters 6 and 7). Here, information is provided on the design of the study, the sample (recruitment, sample characteristics), the procedure of data collection, and the variables themselves. In the section outlining the variables included, individual measures are reported together with their sources, applications, and characteristics. Furthermore, procedures of data treatment (e.g. recoding, composting measures) are described. Finally, this chapter concludes with an overview of the specific features of this investigation and the selection of (groups of) measures for inclusion in the three subsequent result chapters. However, specific details of data analysis are reported in the relevant result chapters, Chapters 5 to 7. Overall, the purpose of this chapter is to link the theoretical part of the thesis, namely Chapters 1 to 3, with the results of the research.

4.2. Design

The present study was a cross-sectional, questionnaire-based investigation of two-parent families with at least two children: a younger sibling aged 11-14 and an older one aged 15-19. Families with different sibling gender combinations (sisters, brothers, older sister with younger brother, older brother with younger sister) were selected for inclusion in this study. Information was collected from mother, father, older and younger sibling building on previous research (Ary et al., 1993; Conger et al., 1994; Reiss et al., 1994; Rowe & Gulley, 1992).

A *multiple informant approach* was chosen for several reasons which have already received some attention in the previous chapters. Each family member seems to be the best source

for providing the most 'accurate' picture of their own alcohol use (e.g. Ary et al., 1993; de Vries, Lemmens, Pietinen, & Kok, 1999). Parents may not be a good source for reporting on their child's alcohol use since adolescents also consume alcohol outside parental supervision (Forsyth & Barnard, 2000; Pavis et al., 1997).

When analysing relations between child-rearing and developmental outcome, the issue of validity of a single informant's perceptions arises (see Sweeting, 2001, for discussion). The agreement between children and parents' reports of parent-child relationships is only modest (Cottrell et al., 2003; Paikoff et al., 1993; Schwarz et al., 1985). Aggregation across multiple respondents reduces the bias (error) inherent to each rater, thus providing a greater portion of true variance and improving on generalisability of measurements (Schwarz et al., 1985). Such an approach, however, has been heavily criticised in family systems research as a 'statistical construct', representing neither reporters' perspective (Cox & Paley, 1997). Consequently, only for one measure in this study, namely exposure to marital conflict, parent and adolescent responses will be aggregated.

Another criticism of research employing only single respondents concerns 'shared method variance'. This suggests that relationships between two measures (e.g. parenting and child behaviour) only arise because they were reported by the same individual (see Sweeting, 2001, for discussion). Information based on a single reporter can "seriously distort parameter estimates in causal models of family effects on individual feelings or behaviour" (Melby et al., 1993, p. 440). For example, Kandel (1996) discussed how adolescent reports on own substance use and perceived peer substance use resulted in inflated associations. This issue is often addressed by collecting information on the two aspects from separate respondents (e.g. parent reported attitude and child reported alcohol use). Such a cross-rater approach (e.g. Feinberg & Hetherington, 2001) is more reliable and credible (O'Connor, 2002). The present study will relate parents' reports and adolescents' perceptions of the rearing environment to siblings' reported alcohol use (see also Chapter 3). If cross-informant relationships emerge parallel to single-informant relationships, it will be demonstrated that the associations cannot entirely be accounted for by 'shared method variance' (Sweeting, 2001). However, it needs to be acknowledged that parent and adolescent reports represent different perspectives and neither is a more valid rater of family processes (Schwarz et al., 1985; see also Chapter 3).

4.3. Sample

4.3.1. Recruitment

The Education Department of the City of Edinburgh Council provided permission to contact schools for participation in the study. Although a nationally representative sample was never aimed for, schools seemed to provide the best recruitment grounds for a set of families that are diverse in terms of socio-economic factors, family size, and adolescent characteristics (e.g. more outgoing youth would be in youth clubs). Successive contact was made with a large number of secondary and primary (only P7 classes) schools[1], both state and independent, in the Edinburgh area. Only a limited number of independent schools were involved to avoid over-sampling families with higher income and higher social status. Schools received a letter outlining the study's purpose and the role of the school in the recruitment phase (Appendix A). About half the schools refused to co-operate (Table 4.1) due to: involvement in other research; perception of alcohol as a 'sensitive issue' in their catchment are; and literacy difficulties among students and their parents. Co-operating schools distributed letters to parents (Appendix A) of pre-selected students with siblings in the defined ages via mail or the students themselves. Families provided informed consent by opting into the study by returning attached reply slips.

Table 4.1. Participation of schools

	State Schools		**Independent Schools**	
	contacted	**participated**	**contacted**	**participated**
Secondary Schools	23	9	4	2
Primary Schools	26	16	0	0

Additionally, two further methods of recruitment were used and their success is shown in Table 4.2. Targeting parents directly through local media announcement of the study[2] and flyers (see copy in Appendix A) being left in various public places[3] was largely unsuccessful. The second additional approach, snowball sampling (Coolican, 1999; Robson, 1993), employed in parallel throughout the data collection period, proved highly successful by recruiting more than half the sample. Participating families provided phone numbers of other families with adolescents in the requested age ranges. These families were

[1] Primary schools were contacted due to the low response rate of secondary schools, particularly in those areas were the secondary schools refused co-operation.
[2] Radio Forth, Evening News, and Herald & Post
[3] Public libraries, swimming pools and leisure centres, doctor's practices, bingo hall

contacted by phone and gave informed consent. Overall, recruitment of families started in May, 2000 and finished in August, 2001. Data collection covered the period from June, 2000 to August, 2001.

Table 4.2. Sample distribution by recruitment method

Recruitment method		**Number of families**	**Subtotal**
Schools	Secondary Schools	34 (27.0%)	58 (46.0%)
	Primary Schools	24 (19.0%)	
Parent-focused approach	Media	1 (0.8%)	1 (0.8%)
	Flyers	0 (0%)	
Snowball sampling	Colleagues	2 (1.6%)	67 (53.2%)
	Participating families	65 (51.6%)	
Total		*126*	*126*

4.3.2. The Participating Families

Overall 126 two-parent families initially participated in the study. Several of the initial 126 families did not meet the inclusion criteria to remain in the sample. Some families provided incomplete data through sudden refusal of three fathers to co-operate and non-completion of questionnaire session in two families (due to escalating family conflict and arriving visitors, respectively). A further four families were reconstituted families and therefore excluded because there is substantial literature supporting the idea of different family processes in reconstituted families as compared to biological families (e.g. Hetherington & Clingempeel, 1992; Sweeting, 2001). Another family was excluded due to concerns regarding the reliability of the older adolescent's responses. Consequently, 10 families were excluded, resulting in an achieved sample for analysis of *116 families*, which is described in detail in the following sections.

All parents were married (M=20.67 years, SD=3.20, range: 15-31 years). The number of children per family varied between two (49.1%), three (38.8%), and four to six (12.1%). The distribution of sibling gender combination pairs was balanced: 28 pairs of brothers and sisters each; 29 dyads of older sisters with younger brothers; and 31 pairs of older brothers with younger sisters. Among older and younger siblings, 49.1% and 50.8%, respectively, were female. The families were predominantly white British families, one was of African origin, and a further family had an Arabic Muslim father who was acculturated to the British

drinking culture. The majority of the family members described themselves as being affiliated at some level to a Christian faith: 67.2% of mothers, 51.7% of fathers, 49.6% (n=113) of older siblings, and 53.0% (n=115) of younger siblings.

Regarding the ages of individual family members, mothers were on average 45.22 years (SD=3.40 years, range: 37-53 years), fathers 47.33 years (SD=4.12 years, range: 37-61 years), older siblings 16.32 years (SD=0.99 years), and younger siblings 13.24 years (SD=1.04 years). The frequency distribution of adolescents' ages is provided in Table 4.3. Siblings' ages differed by between 1.25 to 6.17 years (M=3.09, SD=.96). The age categories of siblings overlapped somewhat (older sibling only 14 years, younger sibling already 15 years).

Table 4.3. Distribution of age among younger and older siblings

Younger siblings		**Older siblings**	
Age in years	**n (%)**	**Age in years**	**n (%)**
11	14 (12.1%)	14	7 (6.0%)
12	36 (31.0%)	15	40 (34.5%)
13	34 (29.3%)	16	37 (31.9%)
14	29 (25.0%)	17	26 (22.4%)
15	3 (2.6%)	18-19	6 (5.2%)

Parental demographics

Education and employment status: Of mothers and fathers, 23.3% and 28.4% completed secondary school or had less education, 11.2% and 8.6% had some college/university education, and 65.5% and 62.9% completed college/university, respectively. Almost all fathers were in full-time employment (97.4%), with only one working part-time and two being retired. The majority of mothers worked either full-time (41.4%) or part-time (46.6%), with 9.5% being housewives and one each being in full-time education or unemployed.

In comparison with the 1999 Scottish Household Survey (SHS), parents of this study are more likely to have a first or higher degree or a professional qualification than SHS participants residing in Edinburgh (aged 35-44: 50%, aged 45-59: 48%; males: 50%, females: 40%) (Scottish Executive, 2000a, b). Similarly, the study recruited a larger

proportion of employed men as compared to SHS Edinburgh data (aged 35-44: 81.5%, aged 45-59: 78.0%) (Scottish Executive, 2000c). For adult females with dependent children, mothers in the present study were more likely to work full-time or part-time, but less likely to look after home/family than their counterparts in the 1999/2000 SHS (24%, 33%, and 25%, respectively) (Dudleston et al., 2001).

Social class: Families' *social class* was assessed using the social class code for fathers' occupation (Office of Population Censuses and Surveys, 1991). Social class code for mother's occupation was used when she, but not the father, worked full-time. When both parents were in part-time employment, the parent's occupation with the higher social class code was taken. Table 4.4 presents social class for the participating families and comparison data from the 2001 SHS (NFO System Three & MORI Scotland, 2001). The SHS comparison data indicate that adults belonging to social class I and II are over-represented in this study, with an under-representation of lower social classes.

Table 4.4. Social class of families compared with 2001 Scottish Household Survey data

Social class	**Sample (n)**	**SHS age band in years:**	
		25-44	**45-64**
I - Professional	25.9% (30)	8%	4%
II - Managerial and technical occupations	48.3% (56)	34%	33%
IIIN - Intermediate & junior non-manual	12.1% (14)	23%	21%
IIIM - Skilled manual & own account non-professional	11.2% (13)	17%	21%
IV - Semi-skilled manual & personal service	1.8% (2)	14%	15%
V - Unskilled manual	.9% (1)	4%	6%

Summary: Overall, the sample is not representative of the Scottish/Edinburgh population. Participating families represent largely highly educated and middle to upper middle class families with a high employment rate.

Adolescents' demographics

Schools and attainment: Among younger siblings, 16.4% attended primary school and 83.4% secondary school. The majority of older siblings were still at secondary school (94%), 4.3% attended college/university and 2.6% worked full-time, with 11.2% working

part-time in addition to school/university. The siblings were at the following educational stages: 54 of the older and 15 of the younger siblings had completed their Standard Grade, 33 and 15 of older siblings had reached Higher Grade and Sixth Year Grade, respectively. The remaining adolescents were too young to have completed any of the educational levels.

School membership' deserves further attention since members of one group (i.e. one school) are related in some way, thus not independent of one another, which may distort results in regression analysis (referred to as hierarchical or multilevel data) (Miles & Shevlin, 2001). If children come from a variety of school environments, there should not be a systematic effect of few particular schools. Sharing the same school environment may contribute further to siblings' similarity on the outcome measure, e.g. alcohol use. This needs to be considered though it was not investigated in this thesis due to the overall sample size and no focus on school influence.

The number of schools attended by the siblings exceeded the number of participating schools due to snowball sampling and some siblings attending different schools. Older adolescents came from 19 different secondary schools (students per school: 1-14) and younger siblings from 30 different primary and secondary schools (students per school: 1-13). Of the sibling pairs, 85 attended the same school, 24 were in different schools, and for another seven pairs the older sibling had completed secondary school. Only a small group of students was in independent schools (15 older siblings, 14 younger siblings).

Birth order: Not all of the sibling pairs were successive in birth order nor was participation in the study limited to first- and second-born children. Birth order needs to be acknowledged since there may be further older siblings within the family exerting influence on the younger adolescent's experience and his/her alcohol use (Ary et al., 1993; Lauritsen, 1993). Among older adolescents, 82 were firstborn, 31 were second-born, and three were third-born children in the families. For younger siblings birth order distribution was as follows: 79 second-born, 33 third-born, and four fourth-born children. Consequently, 112 sibling dyads were of successive birth order (79 first-second, 30 second-third, three third-fourth) as compared to four jump pairs (three first- and third-born pairs, one second-and fourth-born pair). Moreover one older and one younger sibling were twins but their twin sibling was not the targeted sibling, rather another brother or sister in the family was recruited. Overall, birth order was not considered in the analysis.

Summary: The majority of adolescents attended (state) school. With the variety of schools sampled, there should be no systematic effect of particular schools. Most sibling pairs were successive in birth order but not all were pairs of first- and second-borns, thus influences by other siblings cannot be excluded. In general, the terms 'older sibling' and 'younger sibling' are usually abbreviated with 'OS' and 'YS' in subsequent chapters.

4.4. Procedure

Once families had agreed to participate, they received a phone call providing further detail about the study. Demographic information (e.g. number and age of children, parental occupation) was already requested during this phone conversation. Appointments for home visits were arranged during which both parents and both adolescents were present. During home visits, families provided further information on family demographics in an initial interview. Instructions for completing the questionnaires were given (see Appendix B). Thereafter, mother, father and each sibling individually completed self-administered questionnaires under the author's supervision. This ensured confidentiality of each individual family member, which was essential to guarantee reliable information from adolescents, particularly in relation to substance use and other risk-taking behaviours. The questionnaires required between 45 to 90 minutes to complete.

Due to various reasons (e.g. parents' work commitments, adolescents' involvement in clubs, part-time work, and forgotten appointment) it was not always possible to meet the four family members together. If no further rescheduling of the family session was possible, it was considered acceptable to leave a questionnaire for the missing family member when three out of four family members were there. This occurred in 24 of 116 families (usually the father was missing). At two occasions only two family members were present (absent: brother pair, father and younger sibling). The missing family members were asked to answer the questionnaire in privacy and to post it in the provided stamped envelope within two weeks. A reminder phone call was made one week after meeting the family.

4.5. The Questionnaire: 'Drinking Patterns and Other Risk-Taking Behaviours: Relationships between Siblings and Their Parents'

In this section, the variables included in this questionnaire-based study are described. This section reviews questionnaire structure and piloting, individual measures and their coded responses used in subsequent analyses. Information is further provided on data treatment in terms of handling missing/inconsistent responses, data reduction and reliability assessment.

The *questionnaire* was structured and standardised. Items were almost exclusively taken from approved scales for two reasons. First, comparability with other studies was ensured. Second, less time was required for piloting and testing for validity and reliability than is necessary for the introduction of newly developed measures. The structure of the questionnaire was divided into two main sections: family relationships; and use of alcohol and other substances including related norms and attitudes. The parental questionnaires considered alcohol and related issues first, followed by the family relationship questions. This sequence was reversed for adolescents. The more diverse part on alcohol related issues should prevent a reduction in adolescents' concentration after the intensive family relationship questions. Because adolescent alcohol use was the main outcome, it was explored in much greater detail than parental alcohol use. Parent-child relationship measures started with a neutral area (monitoring), followed by measures of conflict, and finished with questions on positive experiences (affection). This sequence of measures was chosen to avoid an over-focusing on negative experiences within the family after the questionnaire session was finished.

To assess the structure and length of questionnaires and ease of responding, the questionnaire was piloted with a sample of four families. The piloting confirmed the appropriateness of the questionnaire-based approach as compared to individual interviews. Interviews required too much time (about four to five hours per family), thus were too intrusive to the families' lives. Adolescents from both bottom and top of the age range did not seem to experience particular difficulties in understanding the questions. Copies of the final parents and siblings' questionnaire and an interview schedule on family demographics are included in Appendix B. Before continuing this chapter with the description of measures, a few general issues of missing responses, data reduction, and reliability analysis, which apply across a range of measures, will be discussed.

4.5.1. Questionnaire Data Treatment

Missing responses

For some subscales/scales, which are identified in the following sections, adjustments regarding missing responses were made. Up to 25% missing values were permitted and taken into account through prorating in the process of constructing sum scores for scales. Prorating is a statistical procedure where the averaged sum score over the reduced number of answered items is multiplied by the full number of items belonging to this particular scale. For every scale, the number of items missing per respondent that was permitted and prorated for is presented. Still, very few respondents had more than the permitted number of missing values per scale. These respondents then had a completely missing scale score and missing construct score (e.g. parent-child warmth or conflict). Therefore, presented totals in the results chapters vary.

Data reduction

Several questions were developed for the study, demanding exploration before aggregating items was possible. Additionally, some constructs were based on several scales which required investigation of their structure. Factor analysis was applied to examine underlying dimensions. Generally, principal components method was used for extraction. This method establishes which linear components exist within the data and how a particular variable contributes to this component (Field, 2000). In fact, in a strictly statistical sense, principal components analysis differs from factor analysis which derives a mathematical model from which to estimate factors (Field, 2000; Kline, 1994). In explaining the variance in a correlation matrix, principal components analysis does not separate out the error variance and therefore results are limited to the sample (Kline, 1994). However, in the following sections, the terms 'factors' and 'components' are used interchangeably. Only factors with Eigenvalues of '1' or above were considered as explaining sufficient variance (Kline, 1994). Factor loadings, reflecting the correlations between variable and factor, were considered as significant when they were equal or larger to 0.3 (Kline, 1994). If a different extraction method was used, it is described in that section on the particular measure.

Reliability measures

To assess the reliability of scales, internal consistency (Cronbach's alpha) was computed. The internal consistency can have values between 0 and 1. The bigger the value, the better

is the internal consistency of a scale. Values of 0.80 or above are considered as high (Howitt & Cramer, 2000).

4.5.2. Presentation of Measures

The following sections present the individual measures, with the sequence being roughly based on predictor (family factors) – outcome (adolescent alcohol use) division and partially reflecting the order of questions in the adolescents' questionnaire. In fact, the most distal variables in terms of their relevance for the actual main investigations (Chapters 6 and 7) are presented first. They include demographics and other confounding correlates of adolescent development and life which are largely used in Chapter 5 only. The second part includes family relationship measures (primarily used in Chapter 7), with the third part focusing on alcohol and other substance use and attitudinal measures (primarily used in Chapter 6). In the description of individual measures references are made to their question number in the adolescent version (*AV*) and/or in the parent version (*PV*) of the questionnaire. If questions contain several subscales, items belonging to individual subscales are identified.

4.5.3. Measures of Demographics and Adolescent Development and Life

The measures employed have previously been related to adolescent alcohol and drug use in several studies (see Chapter 1) (Alsaker, 1995, 1996; Hawkins, et al., 1992; Jessor & Jessor, 1977; Kracke & Silbereisen, 1994; Petraitis et al., 1995). They are only briefly described because they were of no concern in the main results chapters, Chapters 6 and 7, and only served two minor purposes. First, they were used to describe the sample. Second, they facilitated examining the families' representativeness in alcohol use and validating adolescents' reports of drinking as shown in Chapter 5.

Demographics of family members

In the initial interview, families provided information on *ages* and *sex* of <u>all</u> individual family members (including siblings not targeted), *number of siblings*, whether the child is the *biological child of both parents*, and *religious affiliation* for the four targeted family members. In the questionnaire, months and year of birth as well as sex of family member were requested again. During the interview parents reported on their *marital status* (e.g. married, cohabiting) and *duration of marriage/cohabitation.*

Parents: Mothers and fathers responded regarding their *education* and their *work status* (for response categories see interview schedule, Appendix B). Each parent further described the *occupation and position* held which was coded according to the Standard Occupational Coding (SOC) (Office of Population Censuses and Surveys, 1991). This provided the basis for the *family social class* categorisation (see sample description).

Adolescents: In the interview the adolescents were asked *which school* they attended, classifying it as *state or independent*. In the questionnaire, items concerned *education or work* (Q3), including which year in school they were (class) or for how many years they were in higher education, training, or work. They also answered which *educational level* they had achieved (Q4). Multiple answers were possible; the highest level reported was considered (see sample description).

Adolescent development and life

Financial resources: Adolescents provided information whether or not they receive *pocket money* and *earn money* as well as how much they usually *spend per week* on their personal needs and where they get the money from (Q52-53) (Hibell et al., 2001).

School performance and attendance: Each adolescent assessed their *school performance* (Q5) in comparison to other people their age on a 7-point scale ('1=excellent, ...' to '7=poor, ...') (Miller & Plant, 1999). Each sibling also reported how many whole *days of school* they *missed* during the last 30 days separately for three different reasons (illness, skipped or cut, other reasons) on a 6-point frequency scale ('1=none' to '6=7 days or more') (Hibell et al., 1997; Miller & Plant, 1999).

Pubertal development: Pubertal status (Q50) was assessed with the Pubertal Development Scale (PDS) (Petersen, Crocket, Richards, & Boxer, 1988) following Carscadon and Acebo's adaptation (1993; see Williams & Dunlop, 1999). Division of the averaged scale scores (Cronbach's alpha range: .60-.86) based on a procedure by Alsaker (1992; deviation from the mean) provided three *actual pubertal timing* groups: early, on-time and late. *Perceived pubertal timing* (Q51) was assessed with one question asking for the adolescents' perception how their own physical development compares to a reference group (Dubas, Graber, & Petersen, 1991). Three timing groups (early, on time, late) were identified by combining 'much earlier' and 'somewhat earlier'/'somewhat later' and 'much later'.

Problem behaviour: According to Jessor's Problem Behaviour Theory (Jessor & Jessor, 1977), adolescents who engage in one *problem behaviour* (e.g. alcohol use) are more likely to engage in other problem behaviours. Therefore, each adolescent reported their frequency of social rule or law violations during the last 12 months on a 5-point scale ('1=not at all' to '5=five or more times') (Q47). Fourteen items adapted from the ESPAD study (Hibell et al., 2001, Miller & Plant, 2002), except for bullying, driving under the influence, and gambling, were answered. Due to low variation in responses, particularly among younger siblings, incidence scores were computed by adding up the recoded dichotomised responses ('0=no', '1=occurred at least once'). Further four items (Q49) assessed whether the adolescent ever had *other problems* with their parents, police, or regarding sexual activity (Hibell et al., 2001). The adolescents rated whether it never occurred (1), because of their alcohol use (2) or drug use (3) or for other reasons (4).

4.5.4. Family Relationship Measures

This section describes the various measures for family relationships that have been identified in Chapter 3: parent-child relationship (monitoring, warmth/support, conflict/negativity); sibling relationship (warmth, conflict, mutual friends); and marital relationship (quality, conflict, children's exposure to marital discord). The different subsystems are described successively, starting with the parent-child subsystem as the most focal one.

General aspects of parent-child relationship measures

The first set of measures considers questions about *parent-child interaction* which were especially developed to assess interactions in families with siblings (Hetherington & Clingempeel, 1992). These scales were also employed in a nationwide longitudinal study in the USA, NEAD, which investigated nonshared environmental influences among siblings (Reiss et al., 1994, 2000; see Chapter 3). All four family members answered the questions independently. Information was collected as a) each parent's self-report on how they interact with each individual sibling and b) each sibling's perception of this interaction with mother and father separately. The monitoring dimension was assessed with a single scale only as compared to three scales in the NEAD project (Reiss et al., 1994, 2000) to reduce repetitiveness[4]. The warmth/support and conflict/negativity dimensions were composite measures, aggregated across several scales similarly to various NEAD reports (e.g.

Anderson et. al., 1994; Mekos et al., 1996; Reiss et al., 1994, 1995, 2000). All three dimensions are described in subsequent sections.

Researchers who worked on the NEAD project[5] were consulted regarding the proper use of the scales measuring parent-child relations, scale score computation and coping with inconsistent responses. The two-part answering format of some scales required respondents first to answer 'yes (1)/no (2)' whether certain behaviour occurred during the last month. If 'yes' they then specified on a 6-point scale how often this behaviour occurred during this period ('1=not at all in the last week, but at least once in the last month' to '6=more than once a day'). These two answers were collapsed into a 7-point scale ('1=No (not in the last month)' to '7= more than once a day') (Anderson et al., 1994; Plomin et al., 1994). This recoding of responses affected the following scales: Expression of Affection, Parent-Child Disagreement, Parent Discipline Behaviour (all Hetherington & Clingempeel, 1992), and Conflict Tactic Scale (Strauss, 1979), verbal aggression subscale.

Some answers in the raw data achieved in the present study did not fit this format (e.g. respondent answered 'no' and gave a frequency). The following rules[6] were applied systematically to cope with inconsistent responses:

- if 'no' but frequency was given, coded as 'no'
- if 'yes/no' was missing but frequency was given, coded as for 'yes' and frequency
- if 'yes' but frequency was missing or complete non-response, coded as missing

This procedure still did not correct for missing values on particular items. Thus up to 25%[7] missing responses per scale were permitted and prorated for. Cronbach's alphas for all subscales/scales and respondents are presented in detail in Table C1, Appendix C1; its ranges are provided with the individual scale. Items belonging to individual subscales are listed in Appendix C2.

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[4] The same 13 items were phrased in different ways: parental knowledge, attempted control, actual control (e.g. Anderson et al., 1994; Mekos et al., 1996; Reiss et al., 2000).

[5] To receive the original scales including assignment of items to subscales the NEAD project leaders Prof. Mavis Hetherington (University of Virginia, USA), Prof. David Reiss (George Washington University Medical Centre, USA), and Prof. Robert Plomin (Institute of Psychiatry, London) were contacted during December, 1999 and January, 2000, resulting in being referred to Dr Alison Pike (University of Sussex).

[6] These rules are based on a personal communication with Dr Alison Pike, a former researcher on the NEAD project, from 2nd February, 2001.

[7] The NEAD project prorated for 20% missing responses (personal communication with Dr A. Pike, January, 2000).

Monitoring

According to Kerr and Stattin (2000) monitoring reflects parents' knowledge of their children's activities, interests and experiences which is primarily based on the adolescent's voluntary self-initiated disclosure (see also Chapters 1 and 3). The 13-item monitoring scale (PV: Q23, AV: Q6) measures parents' knowledge of their children's activities, choice of friends, substance use, sexual behaviour, etc., using a 5-point frequency scale ('1=never' to '5=always') (Hetherington & Clingempeel, 1992). Some participants did not answer the monitoring items on alcohol, tobacco and/or drug use or they reported "not applicable". In these instances, these substance-specific monitoring items were individually recoded into '5=always' when adolescents' answers on substance use items supported the conclusion that the child had never used this particular substance.[8] Scale scores were computed as sum scores over the 13 items, prorating for up to three items. The scale had high internal consistency, with Cronbach's alphas ranging from .84 to .88 (except for younger sibling reporting on father: .61, Table C1, Appendix C1) similar to previous research (Mekos et al., 1996; Reiss et al., 1995, 2000).

Dimensions of parent-child warmth/support and conflict/negativity

Table 4.5 provides information on the measures employed to construct the two dimensions. This information includes where the subscales can be found in the adolescent and parent questionnaires, number of items, example items, and the range of Cronbach's alpha. Based on the NEAD project, warmth/support was aggregated over three measures (Anderson et al., 1994; Mekos et al., 1996; Reiss et al., 1995, 2000): Parent-Child Relationship (PCR) closeness and rapport subscale, Expression of Affection subscales expressive affection and instrumental affection. Conflict/negativity was indexed by five measures (Anderson et al., 1994; Neiderhiser et al., 1998; Reiss et al., 1995, 2000): Parent-Child Disagreement, Parental Discipline Behaviour subscales punitive discipline and yielding to coercion, PCR conflict, and Conflict Tactic Scale verbal aggression subscale. All subscale scores were computed as averaged sum scores. Cronbach's alphas, indicating internal consistency, were generally high (see Appendix C1, Table C1) and similar to previous reports (Anderson et al., 1994; Mekos et al., 1996; Neiderhiser et al., 1998; Reiss et al., 1995, 2000).

[8] Parental knowledge of adolescent being a non-user still reflects monitoring.

Table 4.5. Overview of measures for the composites parent-child warmth/support and conflict/negativity

Measure	Question in		Example	No of items (prorated)	Scale reliability
	AV	PV			
Parent-child warmth and support					
PCR closeness & rapport (Hetherington & Clingempeel, 1992)	15	30	Warmth, quality of communication, involvement, degree of similarity and understanding, caring about what other party thinks of self	11 (2)[a]	.61-.91
EA expressive affection (Hetherington & Clingempeel, 1992)	16 17	31 32	Physical signs of affection (e.g. 'spent time together')	11 (2)[b]	.80-.86
EA instrumental affection (Hetherington & Clingempeel, 1992)	16 17	31 32	Instrumental signs of affection (e.g. 'been given extra money or something special like an unexpected gift')	11 (2)[b]	.65-.86
Parent-child conflict and negativity					
Parent-Child Disagreement[c] (Hetherington & Clingempeel, 1992)	7 8	24 25	Disagreement on child's adherence to daily routines (e.g. chores, manners) and adolescent issues (e.g. curfew, activities away from home, dating behaviour, substance use)	38 (9)[b]	.83-.94
PD punitive discipline (Hetherington & Clingempeel, 1992)	9 10	26 27	Yelling and shouting, punishing, ridiculing	18 (4)[b]	.79-.91
PD yielding to coercion (Hetherington & Clingempeel, 1992)	9 10	26 27	Parents surrender to noncompliant and disruptive behaviour	6 (1)[b]	.62-.86

Measure	Question in		Example	No of items (prorated)	Scale reliability
	AV	PV			
PCR conflict (Hetherington & Clingempeel, 1992)	15	30	Severe conflicts and fights	4 (1)[a]	.70-.83
Conflict Tactic Scale (CTS) verbal aggression (Form A, Strauss, 1979)	13 14	28 29	Conflict tactics: yelling, stomping out of the room, threatening	6 (1)[b]	.59-.88
Other measures					
PD reasoning & communication (Hetherington & Clingempeel, 1992)	9 10	26 27	Parental attempts to resolve conflict by explaining rules, respecting child's opinion, discussing decisions, encouraging child to take responsibilities	19 (4)[b]	.84-.91

Note: AV/PV … Adolescent/Parent version of questionnaire, prorated … maximum number of missing items prorated for
PCR … Parent-Child Relationship, EA … Expression of Affection , PD … Parent Discipline Behaviour
[a] 5-point scale: '1=not at all' to '5=extremely'
[b] 7-point frequency scale: '1=No (not in the last month)' to '7= more than once a day'
[c] For the purpose of the present study, one item (behaviour toward mother/father who does not live with child) was excluded since it tapped a matter that was of no concern in this thesis.

Composting the dimensions warmth/support and conflict/negativity

The composite measures of warmth/support and conflict/negativity were constructed similar to the procedure described in Reiss et al. (1995). The monitoring scale, represented by a single indicator, was not included in the following procedure. First, patterns of intercorrelations among all measures of parenting were examined to verify that each measure was assigned to its expected construct. Factor analysis with a set two-factor solution applying the General Least Square method with Varimax rotation in SPSS 9.0 was used to confirm the two dimensions. This procedure was repeated eight times: separately for each parent's report on each child and each child's report on each parent. In general, the pattern of factor loadings supported the assignment of the individual parenting measures to the constructs warmth/support and conflict/negativity for each of the eight cases. Only the subscale reasoning/communication could not with certainty be assigned to either factor. Therefore the subscale was excluded and the analyses were re-run for the eight cases. Results of these final factor analyses, confirming the two underlying dimensions of warmth and conflict, are presented in Appendix C2 (Table C2).

These findings justified aggregating the measures within dimensions for each respondent. Each measure was standardised and the standardised (z) scores were then averaged to create an index of each construct for each respondent. The internal consistency for each construct is shown in Table 4.6. Cronbach's alphas were moderate for the warmth/support dimension and high for the conflict/negativity dimension across all reporters and similar to prior reports (e.g. Reiss et al., 1995, 2000).

Table 4.6. Cronbach's alphas for warmth/support (W/S) and conflict/negativity (C/N)

	Mother on		Father on		Older sib on		Younger sib on	
	OS	YS	OS	YS	Mo	Fa	Mo	Fa
W/S	.66	.70	.74	.71	.76	.76	.78	.74
C/N	.85	.87	.86	.86	.82	.83	.84	.79

Sibling relationship

Sibling warmth and conflict (Q18): Each adolescent assessed the quality of his/her relationship with the other target sibling with the Sibling Relationship Questionnaire (SRQ) (Furman & Buhrmester, 1985). Only subscales loading on the dimensions *warmth and*

conflict (Furman & Buhrmester, 1985; Rowe & Gulley, 1992) were included in the questionnaire.

- Warmth: prosocial, affection, companionship, intimacy, admiration for sibling
- Conflict: antagonism, competition, quarreling.

Each subscale contained three items, resulting in 24 items answered on a 5-point response scale ('1=hardly at all' to '5=extremely much'). Scale scores were averaged over the three items. According to the authors' questionnaire handbook, subjects were permitted to miss one item per subscale to still receive the scale score (average over two items). Principal Components analyses with Varimax rotation were computed to confirm the factor structure. A two-factor solution emerged, explaining 68.0% and 65.8% of the variance for older and younger siblings' reports, respectively, and confirmed the assignment of the scales to the dimensions. Warmth and conflict scores were computed by averaging the scale scores. Internal consistency (Cronbach's alpha) for warmth was higher than for conflict across both reporters: .87 for warmth and .72 for conflict (older sibling) and .83 and .68 (younger sibling), respectively.

Mutual friends (Q19): A further question asked how much time the siblings spend with the same group of friends. This question was taken from Rowe and Gulley (1992) who demonstrated that having *mutual friends* also increased similarity in siblings' substance use and delinquency (Chapter 2). Either sibling reported on a 5-point frequency scale ranging from '1=never' to '5=always'.

Marital relationship

Conflict Tactic Scale (CTS) (PV: Q21): The CTS (Strauss, 1979) assesses how couples manage and settle their differences through discussion and argumentation (reasoning), the use of verbal and nonverbal acts or threats to hurt the other (verbal aggression) and the use of physical force against each other (violence). Form N of the CTS was employed with the subscales reasoning (items 1-3), verbal aggression (items 4-10) and violence (items 11-16). Two further items of the violence subscale ('threatening with a knife or a gun', 'used a knife or a gun') were excluded because it seemed unlikely to recruit such abusive couples. Moreover, marital violence was not the main focus of analysis. Each spouse answered whether or not ('yes=2/no=1') he/she used the listed 16 behaviours over the last year. For each subscale, scores reflect incidence scores whereby '0' indicates that none of the tactics

was used, with every other value expressing the number of tactics used per subscale. The maximum score equals the number of items per scale.

Quality of marital relationship (Q16-18, 22): Each spouse reported their overall perception of the quality of marital relations. Four items were developed for the study as a brief measure, assessing happiness in and satisfaction with marital relations, frequency of disagreements unrelated to child-rearing issues and of serious rows. Items were answered on a 5-point scale: '1=never/hardly ever' to '5=always' for frequency items and '1=extremely/very happy/satisfactory' to '5=extremely/very unhappy/unsatisfactory' for happiness/satisfaction items. Principal Components analyses suggested a single factor solution for mothers and a two-factor solution for fathers. Because the items were developed to form a single dimension, Principal Components analyses were re-run set to a single factor solution, which explained a substantial proportion of variance for mothers and fathers, 61.1% and 49.8%, respectively (for details see Appendix C3, Table C3). For each spouse, a composite measure for marital quality was constructed by averaging the four z-standardised items. Cronbach's alphas for the composite were moderate: .78 (mothers) and .66 (fathers).

Exposure to marital discord (PV: Q19-20, AV: Q11-12): Two items assessed each child's exposure to and involvement in the conflict between the parents as reported by mother, father, and adolescents on a 5-point scale ('1=never/hardly ever' to '5=always') (Mekos et al., 1996). In accordance with Mekos et al. (1996), Principal Components analyses confirmed a single factor (explained variance: 41.0% (older sibling) and 40.4% (younger sibling)). A composite measure of exposure to marital discord was constructed by averaging scores across respondents separately for each sibling. Cronbach's alphas for the composite measure were .71 (older siblings) and .70 (younger siblings) and similar in magnitude to Mekos et al.'s (1996) report.

4.5.5. Alcohol Use and Related Variables

In this section, measures are described that assess parents' and adolescents' alcohol, tobacco, and drug use, and attitudinal measures. Individual family members provided self-reports of their own substance use and attitudes as well as perceptions of other family members. Several of the here presented measures are very briefly described since they were only used in descriptive analysis in Chapter 5 (representativeness, inter-rater agreement).

At this point it is necessary to briefly address the validity and reliability of self-reported alcohol use in self-administered questionnaires (see de Vries et al., 1999; Sharp & Lowe, 1989, for discussion). Survey data tend to be compromised by under- or over-reporting, intentionally or unintentionally, which may distort levels of drinking behaviour. Particularly when adolescents are surveyed in the parental home, under-reporting seems more likely (de Vries et al., 1999; Sharp & Lowe, 1989). Therefore, participating adolescents were repeatedly assured that their responses were completely confidential, especially in regard to other family members. Furthermore, it was ensured that the adolescents handed their questionnaire directly to the author. Another issue concerns the recall period, with longer periods being more affected by memory error (de Vries et al., 1999). Despite these compromising issues, de Vries et al. (1999) concluded in their critical review of the assessment of alcohol use that self-reports come "nearest to a gold standard" (p. 56). In further support, Ledoux et al. (2002), quoting Carroll (1995), state that "self-report questionnaires are considered to be probably the best instruments for investigating psychoactive substance use among teenagers" (p. 56).

Parental substance use

Smoking status and quantity (Q3-4): Each parent was asked whether or not he/she smokes ('yes/no') and what he/she smokes. According to what they smoke, parents answered how much using a 5-point scale (e.g. cigarettes per day: 'less than 1 per day' to '5=more than 20 cigarettes')[9]. The items were developed for the study.

Parental alcohol use: Each parent answered whether or not they drink alcohol ('yes/no') (Q5), thus defining *drinking status* (drinker vs. non-drinker). Non-drinkers were asked to provide reasons. Parents who consumed alcohol answered *how often* they drink alcohol (Q6), using a 7-point scale ('1=about twice a year or less' to '7=almost every day') (Follow up Study of Alcohol Use amongst Young Adults; Alcohol & Health Research Centre, Edinburgh). Some parents gave inconsistent answers regarding their drinking behaviour. If information was provided on drinking frequency or timing and quantity of last drink, 'non-drinker'-responses were recoded into 'drinker', affecting one mother and three fathers. Infrequent drinking was not considered abstinence/non-drinking. After this recoding,

[9] Smokers were consulted what would be equivalent amounts for ready-made cigarettes, tobacco for pipe/'rollies', and cigars.

drinking status and alcohol use frequency were collapsed into one measure of *parental alcohol use frequency* using an *8-point scale ('0=doesn't drink alcohol' to '7=almost every day')* which was used in analyses (Chapters 5 to 7).

Last drink (Q7): Mothers and fathers gave responses *when they last had a drink* which was coded similarly to the measure for adolescents, using a 7-point scale ('1=within the last year' to '7=within the last week'). They also provided details on the *quantity* of alcohol consumed (coded in "ml" (milli-litre) of pure alcohol). Quantity was then recoded into categories forming a 5-point scale: up to 10ml (1), 11-20ml (2), 21-50ml (3), 51-90ml (4), over 90ml (5), reflecting the unit measures 'up to 1 unit', '1-2 units', '2-5 units', '5-9 units' and 'more than 9 units'. The recoding was necessary to transform the raw data into an easily understandable code. One centilitre (10ml) is the equivalent of one UK 'unit' or 'standard drink', i.e. equivalent to half a pint of 'normal strength' beer/cider/lager/stout, a single bar measure of spirits or a small glass of wine (Plant et al., 2002, p. 3). Recommendations for 'sensible'/'low risk' drinking generally refer to weekly consumption (Royal College of Psychiatrists, 1986). The division into five categories was arbitrary but was roughly based on these recommended alcohol units. 'Sensible'/'low risk' amounts for alcohol use equal 14/21 units or fewer over the past week for females and males, respectively. Categories 1 and 2 reflect 'sensible'/'low risk' quantities, category 3 'moderate risk', category 4 'high risk' (36/51 or more units over the past week for females and males, respectively; Royal College of Psychiatrists, 1986). Category 5 can only be considered as 'excessive/very high risk'.

Parental problem drinking (Q8): The items originate from the Bell Global Psychopathology Scale (Bell, 1979) but were adapted from McGue et al. (1996a). Parents reported on the frequency of alcohol having caused trouble or problems, of thinking to drink too much and drinking as a coping response, using a 5-point Likert scale ('1=never' to '5=always'). Parents, who remained non-drinkers after the consistency check, were coded '1=never' on the three items to keep them in the analysis. Scale scores were summed over the three items. The scale's internal consistency was moderate with Cronbach's alphas of .74 (mothers) and .67 (fathers).

Parental drug use (Q9-10): Parents answered 12 items whether or not they *ever used drugs* or alcohol-drug combinations ('yes/no') which were adapted from ESPAD (Hibell et al.,

2001). A scale score was computed by summing the items. Mothers and fathers who admitted ever having used *cannabis* also reported when they last used it on a 5-point scale ('1=quit' to '5=in the last few days') (Follow up Study of Alcohol use amongst Young Adults; Alcohol & Health Research Centre, Edinburgh).

Adolescent's perception of parental substance use: Each sibling answered questions on perceived parental substance use, as shown in Table 4.7, for mother and father separately.

Table 4.7. Measures of perceived parental substance use

Perceived parental	**Question**	**Scale**	**Reference**
Smoking	Q36	'1=never/quit' to '6=a lot/many times every day'	Peterson et al. (1994)
Alcohol use frequency	Q37	'0=never/quit' to '7=almost every day'	AHRC[1]
Drunkenness	Q38	'1=never' to '5=most of the time'	Developed[2]
Drug use (a) cannabis, (b) other drugs	Q39	'1=Yes', '2=No', '3=don't know'	Developed[2]

Note: [1] adapted from Follow up Study of Alcohol use amongst Young Adults (Alcohol & Health Research Centre, Edinburgh); [2] item developed for study

Adolescent substance use

Almost all questions assessing adolescent substance use (except for last drinking occasion and drinking quantity) were adapted from the British ESPAD questionnaire (Hibell et al., 1997, 2001; Miller & Plant, 1999, 2000; Plant & Miller, 2000). Because of the large number of indicators, they are summarised in groups or categories. Most measures of alcohol use frequency and peer alcohol involvement were later aggregated as an *alcohol involvement scale* (outcome measure, Chapter 7). Other measures served largely descriptive purposes in Chapter 5 and therefore receive little attention.

Frequency of adolescent smoking, alcohol and drug use: Table 4.8 lists all frequency measures for smoking, alcohol use, alcohol intoxication, cannabis and drug use (all ESPAD: Hibell et al., 1997, 2001; Miller & Plant, 1999, 2000, 2002; Plant & Miller, 2000). They were almost exclusively answered on the same 7-point frequency scale ('1=never' to '7=40 or more times'). Use of illicit drugs was assessed with 15 items on a variety of drugs and drug-alcohol combinations.

Table 4.8. Frequency measures of adolescent smoking, alcohol and drug use

Measure	**Details**	**Question**
Smoking frequency	Lifetime	Q20
Quantity smoked[a]	Last 30 days	Q21
Drinking frequency	Lifetime	Q22
	Last 12 months	
	Last 30 days	
Drinking frequency over last 30 days by alcohol type	Beer/cider; wine; spirits	Q23
Excessive drinking over last 30 days[b]	5 or more drinks in row	Q27
	10 or more drinks in row	Q28
Frequency of intoxication (drunkenness)	Lifetime	Q29
	Last 12 months	
	Last 30 days	
Quality of intoxication[c]	How drunk	Q30
Frequency of cannabis use	Lifetime	Q31
	Last 12 months	
	Last 30 days	
Illicit drugs (other than cannabis)	Lifetime	Q32

Note: Differences in response scales
[a] 7-point scale: '1=not at all' to '7=more than 20 cigarettes per day'
[b] 6-point scale: '1=none' to '6=10 or more times'
[c] Anchored 10 point-scale: '1=somewhat merry' and '10=heavily intoxicated, unable to stand on my feet', '11=I have never been drunk'

Further indicators of adolescent substance use: Adolescents answered *when* they last had a drink (Q24), using a 7-point scale ('1=within the last year' to '7=within the last week'), and the *quantity* consumed during this drinking occasion (coded as parental measure). Each sibling provided the *location*(s) of their last drinking occasion (Q26) (Hibell et al., 2001) whereby multiple answers were possible. *Age at initiation* of substance use (Q33), as an important predictor for later substance use trajectories (e.g. Grant & Dawson, 1997; Hawkins et al., 1992), was noted for 18 items (Hibell et al., 2001). Never used a substance was coded as '0'.

Adolescents' reports of age at first drink of beer/wine/spirits (Q33) were used to verify the frequencies given for use over lifetime/last 12 months/last 30 days and in case of discrepancies to correct them. Some youngsters had never had a full glass of any alcoholic beverage. They were recoded as '1=not at all' (i.e. non-drinkers) on the three measures of frequency because tasting alcohol was not considered initiation of drinking behaviour. *All analysis using frequency of alcohol use over lifetime/last 12 months/last 30 days employed this corrected measure.*

Furthermore, each sibling replied on 14 items (Q35) how many of their *friends*, they think, smoke cigarettes, drink alcohol, get drunk at least once a week, smoke cannabis, or use a variety of drugs on a 5-point scale ('1=none' to '5=all') (Hibell et al., 2001). Friends' use has repeatedly been related to adolescents' use (Hawkins et al., 1992) and may therefore be a good indicator for the adolescent's own use.

Alcohol Involvement scale: Because not all of the adolescent alcohol use measures could be investigated in individual models, several items were aggregated. The selection of items considered for a composite measure was based on McGue et al. (1996a) and the frequency distribution of individual variables (e.g. skewness). The advantage of such an approach is twofold. First, the composite encompasses separate but overlapping characteristics of adolescent alcohol use. Second, the new scale had "measurement properties suitable for parametric statistical analysis" (Foxcroft & Lowe, 1997; p. 219). The composite includes:

- three items assessing alcohol use *frequency* (lifetime, past 12 months, last 30 days)
- three items for *risky drinking behaviour* (five or more drinks in a row over last 30 days, frequency of drunkenness over lifetime and past 12 months)
- two items on affiliation with *drinking peers* (number of peers drinking alcohol/getting drunk at least once a week).

A double-entry file was created in which each sibling represented an independent individual, thus increasing sample size and statistical power. Principal Components analysis resulted in a single factor solution, explaining 70.2% of variance. Running separate analyses with one set factor for older and younger siblings tested reliability of the factor structure. Findings of these analyses are provided in Table C4 (Appendix C4).

Due to different answering formats, the seven items were standardised over all siblings in the double-entry file. Separate standardisation for older and younger siblings would have led to distorted standardised values due to lower variation in younger siblings' responses than older siblings' answers[10]. Sum scores over the standardised items were computed in the double-entry file and then re-entered into the data set, representing the alcohol involvement score. Internal consistencies (Cronbach's alphas) were high: .91 (OS, n=112) and .85 (YS, n=115).

Supply of substances: Based on Brook, Whiteman et al. (1990) and Hibell et al. (2001), each adolescent reported how often he/she has supplied the sibling with alcohol or four other substances, using a 5-point frequency scale ('1=never' to '5=more than 10 times') (Q44). They also reported how often their sibling had supplied them with these substances using the same frequency scale (Q45).

Perceived adolescent substance use: Both siblings and parents assessed the frequency of the adolescent's use of substances. *Older and younger adolescents* (Q43) provided information how often their sibling is involved in six substance use activities on a 5-point scale ('1=never' to '4=often', '5=don't know') (Hibell et al., 2001). Similarly, *mothers and fathers* (Q13 & 15) reported their perception of each sibling's substance use on the same six items and answering scale.

Alcohol attitude measures

This section covers attitudinal measures such as general attitudes towards substance use, child-specific norms for substance use, and adolescents' perceptions of parental sanctions in the case of using a substance.

General attitudes towards substance use (PV: Q11; AV: Q34): To measure general attitudes towards substance use, all respondents answered 14 items whether or not they disapproved of young people (defined as aged 12-18) using a variety of substances to a varying degree. Items were adapted from the ESPAD questionnaire (Hibell et al., 2001). Respondents answered each item on a 4-point scale ('1=don't disapprove', '2=disapprove',

[10] In the case that the younger siblings' variable had a more limited variation (smaller standard deviation) than the older siblings', z-standardising the data (i.e. transforming the data to have a mean of 0 and a standard deviation of 1) would 'stretch out' younger siblings' data further than older

'3=disapprove strongly', '4=don't know'). All four family members reported their own general attitude towards substance use. Each sibling additionally responded how they perceived mother's, father's, and sibling's attitude (AV: Q41 & 46).

To avoid loss of subjects by coding 'don't know' responses as missing, especially for perceived attitudes, responses were recoded to accommodate them in a balanced 3-point scale: '1=don't disapprove', '2=don't know', and, '3=disapprove (strongly)' (collapsed original categories '2' and '3'). Sum scores over the recoded items were constructed, prorating for up to three missing values. Internal consistencies (Cronbach's alphas) for self-reports of mother, father, older and younger sibling were .57, .71, .83, and .84, respectively. Older siblings' perception of family members' attitudes had Cronbach's alphas of .74 for mother, .81 for father and .88 for younger sibling. Cronbach's alphas for younger siblings' perception were .83, .84 and .91 (older sibling), respectively.

Substance use norms (PV: Q12 & 14; AV: Q40): To assess in which situations parents allow each of their two children to use alcohol, tobacco, or drugs or not want their children to use these substances at all, 15 items were developed for the study. They were based on the work of several authors including Andrews et al. (1993), Ary et al. (1993), Peterson et al. (1994), but primarily on Brody et al.'s research (1998) on alcohol use norms for adolescents. Of the 15 items, two considered smoking, 10 alcohol and three illicit drugs. Respondents answered regarding their agreement with the items on a 5-point scale ('1=agree strongly' to '5=disagree strongly'). Substance use norms were reported by each parent for each child and again as each child's perception of mother and father.

In a series of Principal Component analyses (see detail in Appendix C5) the underlying factor structure was investigated to provide a basis for aggregating items. For the present study only the identified scale relating to norms for adolescent alcohol use is reported here. A single dimension of *alcohol use norms*, consisting of seven items which combine norms for socially acceptable drinking and heavy alcohol consumption among youth, was confirmed across the eight rating situations. Scale scores were computed as sum scores over the seven items, with one missing item to be prorated for. Cronbach's alphas ranged from .67 to .79 (Table C5.4).

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siblings' data. When several of these standardised variables were then aggregated this could result in

Perceived sanctions of adolescent substance use (Q42): Adolescents reported what parental sanctions they perceived for their use of tobacco, alcohol (extend, situation), cannabis or ecstasy (Hibell et al., 2001). The 5-point response scale, adapted from Hibell et al. (2001), consisted of '1=would approve of it', '2=would not mind', '3=would discourage it', '4=would be angry about it', and '5=don't know' (maximum 10 per item; recoded as missing values). The construction of a *composite score for sanctions for alcohol use* is based on the intercorrelation between the three alcohol items. The strongest association (all $p<.001$) was found for drinking outside parental supervision and getting drunk: Spearman correlation coefficients were .76 and .78 for older siblings on mother and father, respectively, and .59 and .68 for younger siblings on mother and father, respectively. The two items were averaged for each reporter and parent.

4.6. Overview

The chapter's aim of describing the methodological approach to explore the aims of this thesis can be summarised in the following way. The intrafamilial experiences of parents and adolescent siblings in relation to adolescent alcohol use were explored with a cross-sectional study of intact, multiple-children families. The sample consisted of 116 families which had on average two children and were largely of highly educated and middle class (professional, managerial) background. Mother, father, younger sibling (aged 11-15 years) and older sibling (aged 14-19 years) independently completed standardised questionnaires during a home visit. Questions concerned demographic factors, parental and adolescent alcohol and other substance use, attitudinal measures for alcohol use, quality of various family relationships (marital, parent-child, sibling), and other indicators of adolescent development and lifestyle that have previously been related to alcohol use among youth.

Furthermore, the study combines several special features that are not often employed in studies on adolescent alcohol use and therefore are noted here. First, the study used a multiple informant approach, with information collected from two parents and two adolescent siblings and therefore avoids problems from studies with single respondents. Second, gathering data from parent and child on the same relationships and aspects of the alcohol-specific environment (e.g. drinking norms) allows for the subjective perspective of individual family members being taken into consideration. Here, adolescents' perception of the family environment constitutes a unique social world for each sibling and can be

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younger siblings having a greater mean (though they obviously scored much lower in the raw data).

regarded as their subjective construction of the relationship subsystem (see Reiss et al., 2000). Third, the study examines both alcohol-specific (parental drinking behaviour, attitudinal measures) and non-alcohol-specific family factors (marital, parent-child, and sibling relationship) in association with alcohol use of two siblings in each family. Fourth, by including siblings of either gender composition, the present study can investigate the influence of sibling gender in greater detail which has been ignored by some research (e.g. Monahan et al., 1993) or restricted to only same-sex siblings (e.g. NEAD: Mekos et al., 1996; Reiss et al., 2000). Finally, the extended family design with siblings permits within-family analyses regarding differential experiences as well as the more conventional analyses between families. However, it needs to be noted that generalisations to other than intact family contexts may be inappropriate.

At this point no further information regarding data analysis is provided, except that all analyses were computed with the statistic programme SPSS 9.0 (SPSS Inc., 1989-1999). Due to the variety of statistical analyses employed, the details of various analyses are provided in the individual result chapters. The type of statistical analysis/test chosen to test the research questions affected the selection of variables. Particularly for adolescent alcohol use as the main outcome measure the choice of variables was strongly based on their measurement properties. The common skewness of alcohol use data violates the normality assumption of many statistical tests. Logarithmic transformation was tested and due to not improving the distribution rejected. The selected variables – frequency over the last 12 months, also lifetime frequency of drunkenness (Chapter 6) – showed the closest approximation to normal distribution, more so for older than younger siblings. The alcohol involvement measure (Chapter 7) was normally distributed.

Different sets of variables were selected for analyses according to the aim and purpose of the following three results chapters. *Chapter 5* further describes the sample and shows respondents' differences. As shown, the achieved sample was not demographically representative of the general population in Edinburgh, although this has never been the aim of this thesis. Yet, it is unclear whether the sample differs from the general population in terms of alcohol use. To clarify this issue descriptive analyses were conducted which included all measures of substance use and confounding variables such as social class, education, issues of adolescent development and life. In addition, Chapter 5 explores the agreement between different respondents on the same issue (e.g. parent-child relationship)

to demonstrate the necessity of multiple respondents and self-reports of alcohol use. Thus, in Chapter 5 the following measures are employed: parent and child reports of parental and adolescent substance use, attitudes *and* norms, parent-child relationship, and siblings' reports on their relationship. This double task of Chapter 5 further contributes to linking the review section with the *main* result chapters.

The two main results chapters, Chapters 6 and 7, test specific hypotheses outlined in the models in Figures 2.2 and 3.2. *Chapter 6*, focusing on alcohol-specific family factors (Chapter 2), considers the following measures: parental frequency of alcohol us, parent and adolescent self-reported attitudes towards substance use, parent and adolescent reports of alcohol norms, perceived parental sanctions, older siblings' provision of alcohol use, and sibling relationship measures (warmth, conflict, mutual friends). *Chapter 7*, investigating the non-alcohol-specific family environment (Chapter 3), focuses on the family relationship measures (parent-reported and adolescents' perception of parent-child relationship; marital relation; sibling relationship), and parental alcohol us (self-reports: frequency, drinking problems). Both Chapters 6 and 7 represent concise empirical reports inclusive of a brief summary of reviewed evidence, specific research questions and working hypotheses, methods of data analysis and results. At the end of each chapter, findings are summarised and discussed.

CHAPTER 5

PREVALENCE OF ALCOHOL USE AND INTER-RATER AGREEMENT AMONG FAMILY MEMBERS

5.1. Introduction

The previous chapter provided the methodological approach to explore the gaps in research outlined in Chapters 2 and 3. Furthermore, the suitability of this approach in terms of the sample's representativeness and previous evidence in support for using multiple informants was described. In this chapter, two further themes are examined. First, the sample's representativeness is additionally assessed in terms of their alcohol use and related aspects by describing the behaviour of family members. This contributes to evaluating the generalisability of the findings. Though the primary focus of this study is on alcohol use, some information is also provided on tobacco and drug use. Parents and adolescents are described in separate sections. The second theme relates to the reasons for choosing multiple respondents in this study. The agreement of different family members' reports on the same aspect of the family environment (e.g. parents and siblings' perception of parenting) is examined. Lack of congruence between different reporters is considered supportive for the choice of self-reported alcohol use and the use of individual family members' reports in repeated analysis (e.g. self-report and family members' perception) instead of composting across various respondents.

Although this chapter describes family members' substance use, the approach differs from epidemiological (i.e. population) studies. The purpose here was to assess how representative or different the consumption levels of family members are as compared to the general population. Surveys of adult substance use generally employ postal questionnaires that are completed by one individual per household, aged 16 or above (e.g. based on educational, social class and age quota). In contrast, surveys of adolescent health behaviours usually focus on selected age cohorts (e.g. 15-16 year olds in ESPAD, Hibell et al., 2001). The school-based data collection, usually during a defined period of time/a particular day, has been associated with over-reporting (hence the inclusion of a "dummy"-drug, Hibell et al., 2001) as compared to under-reporting tendencies in home-based interviews (de Vries et al., 1999; Sharp & Lowe, 1989). In this study,

four members per family, with adolescents' ages ranging from 11 to 19, reported their substance use (and other issues) in home-based questionnaires on different weekdays and seasons over a 15-months period (see Chapter 4). Thus, the comparison of participating families with the general population will inevitably result in different statistics. Nonetheless, this will help to contextualise participants' substance use in terms of being above or below national averages in consumption.

5.2. Prevalence of Parental Substance Use

This section provides information on the prevalence of parental drinking, with smoking, and drug use being of minor interest. Moreover, parental substance use was explored in terms of socio-economic measures such as educational attainment and social class. Some respondents did not answer every question. Because of this 'internal non-response' rate, variations in sample size are provided (reduced sample size=n). Otherwise the findings were based on N=116 mothers and fathers each. To compare for gender differences, Wilcoxon Signed Ranks tests were used (non-normal data, paired sample). Findings were compared with a number of other surveys:

- Study of more than 2000 British adults aged 18 and older, surveyed in 2000 (Plant, Plant, & Masons, 2002)
- Scottish Health Survey 1998 (SHeS) (Shaw, McMunn, & Field, 2000)
- Scottish Household Survey 1999 (SHS) (Scottish Executive, 2000d).

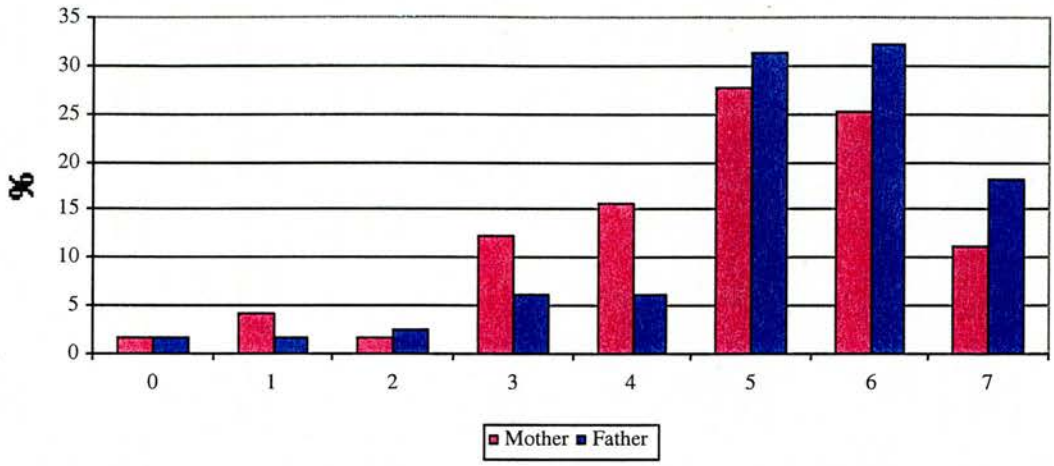
These surveys were selected because of their similar period for data collection as compared to this study (2000-2001). Wherever possible, the present sample was compared to corresponding age groups in these surveys.

5.2.1. Parental Alcohol Consumption

The vast majority (98.3%) of mothers and fathers currently used alcohol (n=115). Only two mothers and two fathers did not drink alcohol for a variety of reasons (not enjoying the taste, religious reasons and expense, medical condition, frequent driving). However, those who consumed alcohol engaged in it rather frequently. Almost two thirds of mothers (64.3%) and more than four in five fathers (81.7%) drank alcohol at least once a week. The distribution of the *frequency* of parental alcohol consumption, including the non-drinking parents, is presented in Figure 5.1. A significant gender difference in mean frequency of alcohol use was found

(Wilcoxon Signed Ranks Test: Z(114)=-3.51, p<.001), with mothers drinking significantly less frequently than fathers. However, mothers' and fathers' drinking frequency was strongly correlated (r(114)=.61, p<.001).

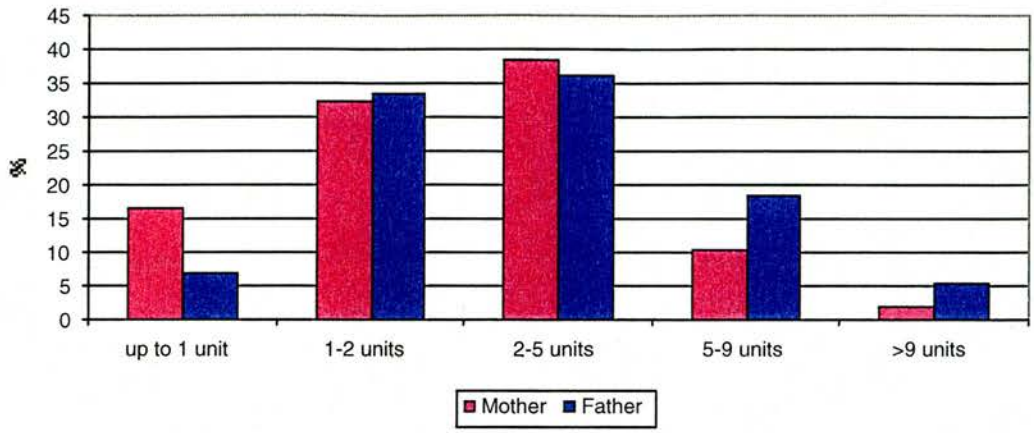
Figure 5.1. Frequency (%) of alcohol consumption by parent (n=115 each)



Note: 0=non-drinker, 1=about twice a year or less, 2=once every 3 or 4 months, 3=once a month/2months, 4=about once a fortnight, 5=1-2 times a week, 6=3-4 times a week, 7=almost every day

Most parents had their *last drink* within the last week: 78.9% of mothers (n=109) and 87.3% of fathers (n=110). A further 11.9% mothers and 4.5% fathers drank within the last fortnight, followed by 4.6% and 2.7%, respectively, within the last month. Only 4.6% of mothers and 5.5% of fathers did not consume any alcohol within the last month, 1.8% and 0.9%, respectively, not within the last six months. At this last drinking occasion, 87.7% of mothers and 76.3% of fathers (n=114 each) consumed a low to moderate *quantity* of alcohol (up to 50 ml of pure alcohol). Only two mothers (1.8%) and six fathers (5.3%) consumed excessively high quantities of alcohol (more than 90ml of pure alcohol). Results are shown in Figure 5.2.

Figure 5.2. Frequency (%) of alcohol quantity consumed: last drinking occasion by parent (n=114 each)

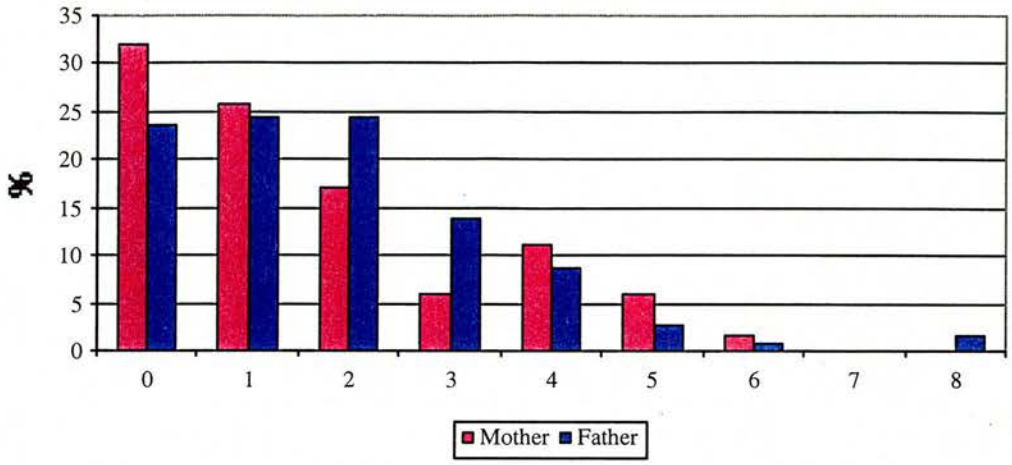


Parents also reported whether they experienced *alcohol-related problems*. The distribution of the sum score index over three items is shown in Figure 5.3. A large proportion of parents reported no problem (Mothers: 31.9%; Fathers: 23.5%) or one problem having occurred seldom (Mothers: 25.0%, Fathers: 27.8%). No gender difference was found for mean level of alcohol problems. Mothers' and fathers' report of experienced alcohol problems were positively and significantly associated with each other[1] ($R(115)=.46$, $p<.001$), as were each parent's frequency of alcohol use and alcohol problems (Mother: $R(115)=.52$ and Father: $R(115)=.48$, both $p<.001$). Based on the moderate relationship, drinking frequency explains only 23% to 27% of the variability in reported alcohol problems for either spouse. Thus, the different variables seem to reflect different aspects of parental alcohol use.

Furthermore, adolescents reported how often they *experienced their parents drunk*. A substantial proportion of older siblings reported never having seen their mother (45.7%) or father (36.2%) being drunk, followed by 36.2% and 39.7% 'seldom'-responses as well as 14.7% and 15.5% replying sometimes to often, respectively. For younger siblings the corresponding figures for mother and father were 65.2% and 61.7% (n=115), 26.1% and 27.0%, and 8.7% and 11.3%, respectively.

[1] Spearman's rho (R) was computed due to the very skewed distribution of the parental problem drinking index.

Figure 5.3. Frequency (%) of problems due to alcohol use for mothers (n=116) and fathers (n=115)



Note: Categories reflect *sum scores across three items* (see Chapter 4 for description): anchor points are 0=no problems, 3=overall seldom, 6=overall sometimes, 9=overall often

In comparison with other surveys, fewer adults (men: 91%, women: 85%) reported at least occasional drinking in the Plant et al. study (2002) than in this study. The present sample also showed a higher prevalence of drinking three or more days per week (fathers: 50.5%; mothers: 35%) than SHeS 1998 participants (Shaw et al., 2000) (males: 35-44 years: 36%, 45-54 years: 42%; females: 35-44 years: 23%, 45-54 years: 21%). About half of the respondents (57% males, 44.9% females) in Plant et al.'s (2002) study had experienced negative effects related to their alcohol use in the past year. This compares with two thirds of mothers and three quarters of fathers stating having had any alcohol problems over recent years in this study.

5.2.2. Parental Smoking and Drug Use

Only a minority of mothers (9.5%) and fathers (13.8%) were current *smokers*. In 13 families one parent smoked (four mothers, nine fathers), compared to both parents in seven families. Their smoking varied across all categories from very light to heavy smoking. The proportion of smokers in comparison surveys was considerably higher for the age groups 35-44 years and 45-54/59 years. Survey prevalence varied for age groups (and gender) between: 24.8% and 30.0% in the SHS 1999 (Scottish Executive, 2000d), 33% and 40% in SHeS (Shaw et al., 2000), and

34.8% and 43.9% in Plant et al. (2002; last 30 days). Thus, in comparison to survey data, the present sample contains substantially fewer current smokers.

Similarly the use of *drugs* and drug-alcohol combinations was low among parents. About four out of five mothers (79.3%) and 68.7% of fathers (n=115) had never tried any drug, 12.2% and 12.9%, respectively, had tried one, whereas 7.7% and 18.3%, respectively, used two or more drugs/combinations. In 17 families both parents had ever tried drugs, with only one parent in another 26 families (19 fathers, 7 mothers). Few parents had used drugs other than cannabis (between 0.9% and 7.8% per substance: non-prescribed tranquilizers/sedatives, amphetamines, cocaine/crack, LSD/hallucinogens, magic mushrooms, alcohol and pills, steroids). Of the parents who reported *cannabis* use (mothers: 17.2%; fathers: 28.7%), seven mothers and 17 fathers used it in combination with alcohol. While the majority of the cannabis-using parents had quit cannabis use (12 mothers, 25 fathers), one mother and three fathers had used it recently (between last six months and last few days prior to questionnaire). Plant et al. (2002) also reported cannabis as the most commonly used illicit drug in their sample (89% of all those that used drugs during the last year) but levels are not comparable.

5.2.3. Parental Substance Use, Social Class and Education

This subsection provides a brief summary of analyses of smoking (current smoker versus non-smoker), drinking (3 or more days/week versus less often) and drug use (ever versus never used) in relation to socio-economic group (higher=I-IIIN versus lower=IIIM-V) and education (some/completed college/university versus no college/university). The dichotomised measures were analysed in cross-tables with χ^2-tests or Fisher's Exact Test, 2-sided when expected cell counts of less than 5 occurred.

A significant association was found between alcohol use and socio-economic group in both mothers ($\chi^2(1)=4.63$, $p<.05$) and fathers ($\chi^2(1)=6.39$, $p<.05$). Those parents in the higher socio-economic group were more likely to drink at three or more days a week. Educational level and alcohol use were only significantly associated among fathers ($\chi^2(1)=8.83$, $p<.01$). Fathers with at least some college/university experience were more likely to consume alcohol on three or more days per week. Current smoking status was neither related to socio-economic group nor education for mother or father. For drug use, no association emerged with socio-economic

group but with educational level. Mothers ($\chi^2(1)=9.18$, $p<.01$) and fathers ($\chi^2(1)=7.29$, $p<.01$) having attained at least some college/university were more likely to ever having reported drug use.

5.2.4. Summary

The present sample of parents was not representative of the Scottish/British population in regard to substance use. Participating parents were less likely to smoke than other Scottish adults in similar age groups. It seemed to be a rather "drinking" sample compared to the general population, endorsing a high-frequency-low-quantity pattern. A substantial proportion of mothers and fathers reported the experience of at least one problem related to their alcohol consumption having occurred at least 'seldom' over the recent years. In comparison with a national survey (Plant et al., 2002), the present sample had a higher prevalence of alcohol problems, possibly due the wider recall period for this study and differences in questions. In addition, the participating parents appeared rather conscious about their drinking. Gender differences emerged only for drinking frequency, with fathers drinking more frequently than mothers. Higher social class status (non-manual or higher) was positively associated with parents' frequency of alcohol consumption, confirming previous findings (Shaw et al., 2000). Parents with higher education were more likely to ever have used drugs and, for father's only, to drink at least three days per week.

5.3. Prevalence of Adolescent Substance Use

Similar to the previous section on parental substance use, descriptive results are presented on adolescent alcohol use (drinking status, drinking frequency, last drinking occasion, binge drinking, intoxication, and age at initiation) and, to a lesser extent, on smoking and drug use. Findings are shown by sibling status (older=OS, aged 14-19; younger=YS aged 11-15) and gender. Again, due to 'internal non-response' rate, reduced group size (n) is provided. In all other cases the group sizes according to sibling status and gender were as follows: older males N=59, older females N=57, younger males N=57, younger females N=59 with an overall sample size of 116 families. Gender comparisons are based on Mann-Whitney U-tests (non-normal data, independent samples). Further issues concern sibling supply of substances and correlates of adolescent alcohol use. Findings are discussed in comparison with the following large surveys:

- ESPAD 1999 (Hibell et al., 2001): 15-16 year olds
- HBSC 2002, Scottish Findings (Currie et al., 2004; Todd, 2005): 11-, 13-, and 15-year olds
- 'Smoking, drinking and drug use among young people in Scottland in 2000' (Boreham & Shaw, 2001): 12-15 year olds.

Again, these surveys were selected because their data collection period coincided or was very close to the period of data collection in this study (2000-2001), independent of the fact that more recent surveys are available (e.g. SALSUS 2002: Currie et al., 2003; SALSUS 2004: Corbett, J., Akhtar,P., Currie, D. & Currie, C., 2005). Thus, individuals are compared who experienced approximately the same historical context (e.g. changes in alcohol licensing and drinking by-laws or introduction of age card schemes could influence young people's behaviour).

5.3.1. Adolescent Alcohol Use

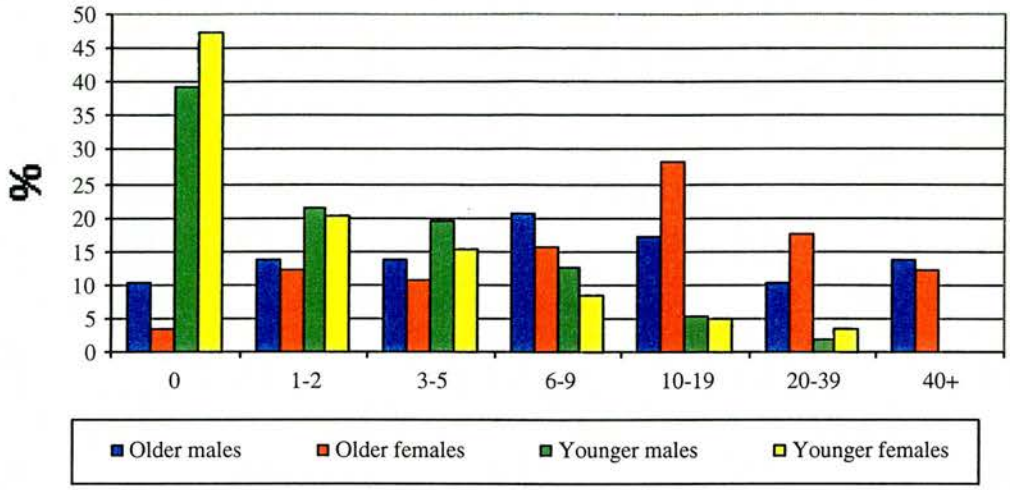
Drinking status

The vast majority of older adolescents - 94.7% of males (54/57) and 96.4% of females (54/56) - had initiated alcohol use (i.e. had a proper alcoholic drink in their lifetime). The situation was very different for younger siblings where a considerable number had never had a full drink: 38.6% (males) and 45.8% (females). This proportion declined by increasing age of the adolescent: 78.6%, 52.8%, 41.2%, and 15.6% for the 11-, 12-, 13-, and 14- to 15-year olds, respectively, indicating the age-related changes mentioned in Chapter 1.

Drinking frequency

The drinking frequency during the *last 12 months* for older and younger siblings by gender is shown in Figure 5.4. A minority of older male (10.3%; n=58) and female (3.5%) adolescents did not consume alcohol over this period. In contrast, for younger siblings the proportion of non-drinkers over the last year was considerable: 39.3% of males (n=56) and 47.5% of females. Figure 5.4 shows that older siblings are more represented in the higher-frequency categories. Whereas 13.8% of older males and 12.3% of older females drank about 40 or more times, only a minority of younger males (7.2%) and females (8.5%) consumed alcohol 10 or more times. There was no gender difference in the mean drinking frequency during the last 12 months for both older and younger siblings.

Figure 5.4. Last 12 months drinking frequency (%) by sibling status and gender



Note: x-axis provides times consumed alcohol; OS male: n=58, OS female: n=57, YS male: n=56, YS female: n-59

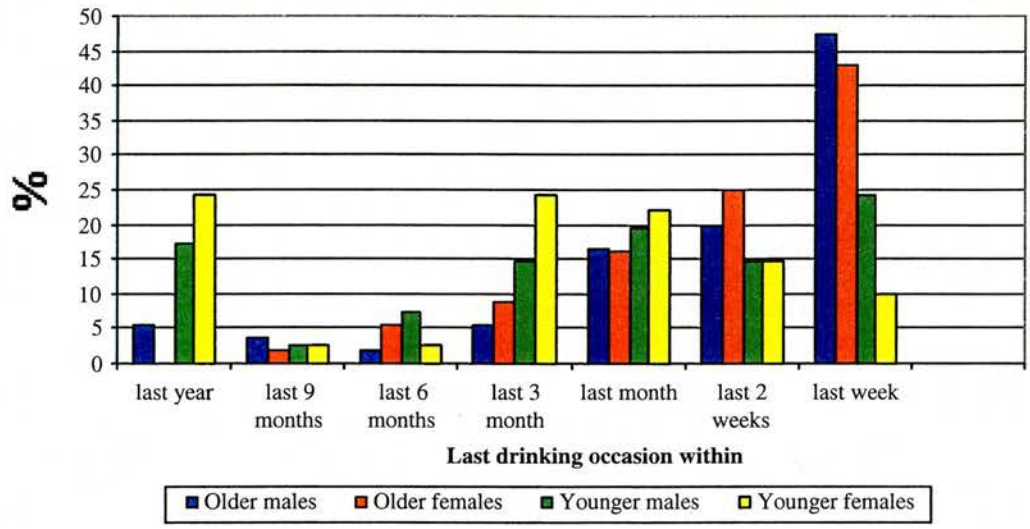
Differences in drinking level by sibling status become even more apparent over the *past 30 days*. Among older siblings, 24.1% of males (n=58) and 16.1% of females (n=56) did not consume alcohol, 56.9% and 55.4% drank up to once a week (1-5 times), and 3.4% and 7.1% consumed alcohol 20-39 times, respectively. Corresponding figures for younger siblings are 60.7% of males (n=56) and 64.4% of females for 'no occasion', 35.9% and 30.5% for 1-5 times, and 3.6% and 5.1% for 6-9 times, respectively.

Last drinking occasion

Information was collected on the timing of last drinking occasion, quantity consumed and location. Responses included those adolescents who may only ever have tasted alcohol. Figure 5.5 shows the frequency of *timing* of last drinking occasion during the last year for older and younger siblings, which was answered by 55 older males, 56 older females, and 41 younger males and females each. Several adolescents were not included in this analysis because they either did not respond or did not drink within the last year.

Over 80% of older siblings (males: 83.6%, females: 83.9%) last consumed alcohol within the month prior to the questionnaire and 47.3% of males and 42.9% of females did so during the last week. For a minority of 9.1% male and 1.8% female adolescent the last drinking occasion was more than 6 months ago. Data on younger siblings indicate a different pattern. Less than one quarter of younger adolescents (males: 17.1%, females: 24.4%) had their last drinking occasion more than nine months ago but within the last year. About half of the adolescents consumed alcohol within the last month (males: 58.5%, females: 46.4%). Fewer females (9.8%) than males (24.4%) drank within the week prior to the questionnaire.

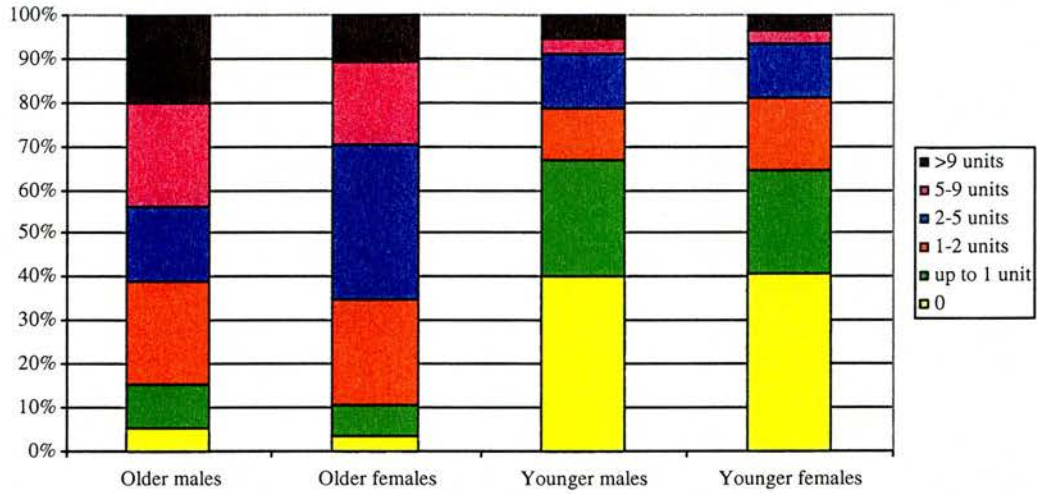
Figure 5.5. Timing of last drinking occasion by sibling status and gender



The *alcohol quantity* consumed during the last drinking occasion is shown in Figure 5.6. Those coded '0' represent adolescents who never even tasted alcohol. The group 'up to 1 unit' includes adolescents who tasted alcohol or had up to a 'proper' drink of alcohol (small glass of wine/beer or single measure of spirit). Few older adolescents either did not drink anything at all (males: 5.1%, females: 3.5%) or consumed very little, up to one unit (males: 10.2%, females: 7.0%). Older females were slightly more represented in medium quantity categories, whereas older males were in high/excessive quantity categories. For younger siblings the proportion of those who did not consume any alcohol is substantial and equal for males and females (40.4% and 40.7%, respectively). About one quarter of younger siblings (males: 26.3%, females:

23.7%) consumed up to one unit of alcohol. About one third of younger adolescents drank the equivalent of more than one unit of alcohol. The difference between older and younger siblings' occupancy of quantity categories also suggests age-related increases (see Chapter 1). Again, no gender difference in mean drinking quantity emerged.

Figure 5.6. Last drinking occasion: Quantity of alcohol consumed by sibling status and gender



Of further concern was where young people spent their last drinking occasion as shown in Table 5.1 (multiple answers possible). For both older and younger siblings private homes seem to be the most common drinking locations. Outdoor locations appeared less important in contrast to previous reports (e.g. Forsyth & Barnard, 2000). Among older siblings, licensed premises also provided drinking environments, in line with reports of young people moving into the public sphere for drinking from age 15/16 onward (May, 1992; Sharp & Lowe, 1989). Other places include restaurants, weddings, camping, where between half and three quarters of adolescents drank under parental or other adult supervision.

Table 5.1. Location of last drinking occasion

	Older sibling	Younger sibling
At home with parents	25.0%	39.7%
At home without parents present	4.3%	8.6%
At someone else's home	39.7%	25.0%
Out on the street, in a park, beach or other open area	8.6%	6.0%
In a bar or a pub	25.0%	1.7%
In a disco	14.7%	1.7%
Other places	8.6%	10.3%

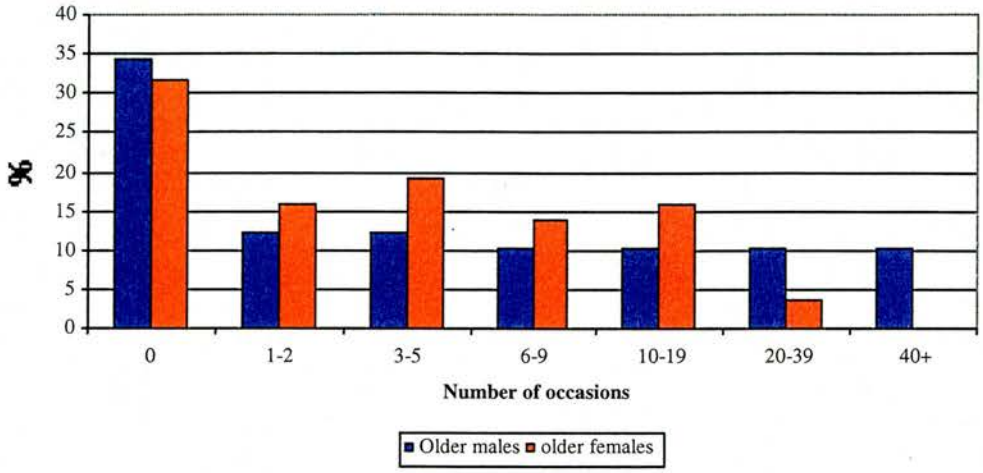
Excessive drinking

Of major concern in the UK is the high quantity intake of alcohol at a single occasion. Older and younger siblings reported how often they consumed five or more drinks in a row in the last 30 days ('binge') and experienced drunkenness. *'Binge' drinking* was reported by about half of older males (54.2%) and females (49.1%). Among older males, one quarter (25.4%) reported 'once', 11.9% 'twice', and 17.0% '3 or more times', with corresponding figures for older females being 15.8%, 14%, and 19.4%, respectively. Overall, 32.2% of older males and 14.0% of older females reported having had 10 or more drinks in a row over the last 30 days at least once. As expected, for younger siblings the number of 'binge' drinkers was smaller: 7.0% of males and 5.1% of females reported having had five or more drinks at least once over the last 30 days. Two females and one male reported having had 10 or more drinks in a row.

Differences by sibling status are also evident in relation to *intoxication*. Figure 5.7 shows older siblings frequency of *lifetime intoxication*. About one third of male (34.5%, n=58) and female (31.6%) adolescents reported never having been drunk. A further quarter (males: 24.2%, females: 29.9%) experienced drunkenness up to five times, with a considerable number of males (20.6%) but fewer females (3.5%) reporting 40 or more times over their lifetime. There was no significant gender difference in mean level of lifetime intoxication. Over the last year, 61.4% of males (n=57) and 61.8% of females (n=55) reported drunkenness, 21.1% and 21.8% having been drunk once or twice and 21.1% and 12.7% 10 or more occasions of intoxication, respectively. Drunkenness over the last 30 days was reported by 44.6% of males (n=56) and

30.9% of females (n=55), with 16.0% and 12.7%, respectively, having been drunk three or more times.

Figure 5.7. Prevalence (%) of lifetime intoxication by sex of older sibling



The proportion of younger as compared to older siblings who had never been drunk was about twice the size: 77.2% of males and 83.1% of females. Drunkenness was experienced once or twice by 17.5% male and 13.6% female younger siblings and three or more times by 5.3% and 3.3%, respectively. Again, no gender difference in mean level was found. During the last 12 months, 19.3% of males and 6.8% of females were drunk (none more than 5 times), with 10.5% male and 5.1% female adolescents reporting drunkenness at least once over the last 30 days.

Asked about how drunk they were at their last intoxication, older and younger siblings' reports ranged from '1=somewhat merry only' to '9' (maximum value: '10=heavily intoxicated, unable to stand on my feet'). The first five categories were chosen by 66.5% of the 81 older siblings and by 84% of the 25 younger siblings who responded to the scale.

Age at initiation

Table 5.2 presents the age ranges for first time consumption of a whole alcoholic drink by older and younger siblings (number of positive responses). The apparent earlier initiation age among younger than older siblings may reflect a memory effect whereby recall becomes less accurate the longer the recall period (deVries et al, 1999). For instance, the recall period for a 17-year

old to remember his first glass of beer at the age 10, 11 or 12 is much longer and possibly distorted by intermediate experiences of more intensive drinking, than for a 12-year old.

Table 5.2. Older and younger siblings' age at first time use of alcohol

	Older sibling		Younger sibling	
	n (responses)	**Age range in years**	**n (responses)**	**Age range in years**
Beer	85	8-17	40	7-15
Wine	80	6-17	47	7-14
Spirits	90	12-17	35	8-15
Drunkenness	76	12-17	20	11-15

Comparison data

Overall prevalence in the present sample tended to be lower to similar in comparison to other survey data. The proportion of older siblings ever having consumed alcohol is similar to that reported in both ESPAD reports (1995 Scotland: 96.0% of females, 95.3% of males; Miller & Plant, 2000; 1999 UK: 94% each; Hibell et al., 2001). Higher rates of lifetime intoxication were found in ESPAD 1995 for Scotland (females: 77.6%, males: 77.1%; Miller & Plant, 2000) and in ESPAD 1999 (UK 76% each; Hibell et al., 2001). The proportion of those who consumed five or more drinks in a row over the last 30 days was comparable to figures reported in both ESPAD studies (1995 Scotland: 56.3% females, 52.5% males; 1999 UK: 56%). For younger siblings, the number of non-drinkers is comparable to data from the Scottish survey (Boreham & Shaw, 2001): 38% of male and 39% of female 12-15 year olds. In their study, more males and females (16% and 14%, respectively) reported drinking alcohol at least once a week than younger siblings reported alcohol use 3-5 times over the last 30 days in this study. The 2002 HBSC study also reported a higher proportion of weekly drinkers (22.7% of males, 22.4% of females; Todd, 2005) than was found among younger siblings. Fewer younger siblings also reported having ever been drunk than the figures from the HBSC study suggest (40.8% and 41.3% of males and females, respectively) (Todd, 2005).

5.3.2. Adolescent Smoking and Drug Use

The findings on adolescent *smoking* are only briefly summarised here. Table 5.3 shows the lifetime frequency of smoking for older and younger siblings by gender. The majority of older

and younger adolescents had never smoked. Relatively few older siblings (11.9% of males, 5.3% of females) reported smoking on 40 or more occasions, with the highest category used by younger siblings being 10-19 occasions. There was no significant gender difference in average lifetime smoking frequency for older or younger adolescents. During the past 30 days, 22% of male and 12.3% of female older adolescents smoked cigarettes (6.8% male and 5.3% female adolescents smoked daily). The number of younger siblings smoking during the last 30 days is negligible (one male smoked occasionally, one female smoked daily). Age at initiating smoking the first cigarette and daily smoking varied from 10 to 17 years (n=48) and 14 to 18 (n=7) for older siblings, and from 8 to 15 years (n=14) and from 11 to 12 (n=2) for younger adolescents, respectively.

Table 5.3. Lifetime smoking frequency (%) of older (OS) and younger sibling (YS) by gender

Occasions	**0**	**1-2**	**3-5**	**6-9**	**10-19**	**20-39**	**40+**
OS male (59)	55.9	16.9	5.1	5.1	5.1	0	11.9
OS female (57)	61.4	21.1	1.8	0	7.0	3.5	5.3
YS male (57)	86.0	5.3	3.5	1.8	3.5	0	0
YS female (59)	84.7	13.6	0	1.7	0	0	0

Differences emerged by comparing the present findings on older siblings with Scottish data from ESPAD 1995 (Miller & Plant, 2000), despite a wider age span being covered in the present study. A smaller proportion of older adolescents in this study than in ESPAD had a) ever smoked (ESPAD: females: 69.5%, males: 62.8%) and b) smoked during the last 30 days (ESPAD females: 35.8%, males: 26.0%). For younger siblings, the proportion of those ever having smoked was also smaller when compared with HBSC responses of 11-15 year olds (33.4% of males, 38.3% of females; Todd, 2005; for separate figures for 11, 13 and 15 year olds see Currie et al., 2004) or corresponding figures for 12-15 year olds in Boreham and Shaw (2001) (56% males, 49% females).

Cannabis was the most commonly used illicit drug. Lifetime use was reported by 29.3% (n=58) of male and 12.3% of female older siblings. About one in ten (10.3% of males, 8.8% of females) used it once or twice, with 19.0% of males and 3.6% of females having used it three or more times. A significant gender difference in mean frequency over the lifetime emerged

(Mann-Whitney U-Test: U(115)=1346.00, p=.016). Older males used cannabis more frequently than older females. During the last 12 months, 22.4% (n=58) of older males but only 8.8% of older females consumed cannabis at least once, with 10.3% (n=58) male and 1.8% female adolescents reporting use during the last 30 days. In contrast, only one younger male and female sibling each had ever tried cannabis, with the female having used it over the last year. Combined use of cannabis and alcohol was reported by about one quarter of older males, 8.8% of older females and one younger adolescent.

Drug use other than cannabis was scarce. Between 1.7% and 5.3% male and female older adolescents reported use of heroin, non-prescribed tranquillizers/sedatives, or sniffing alcohol. Overall, 19% had ever used one drug (other than cannabis) or drug-alcohol combination, a further older sibling used three drugs/combinations. Use of tranquillizers/sedatives, or inhalants, or sniffing alcohol were reported by one younger sibling each. Three of the younger siblings used only one drug (other than cannabis)/combination, one used two. Regarding age at initiation, cannabis was tried the first time by experimenting older siblings at ages 10 to 17 (n=23), whereas for other drugs ages varied between 12 and 15 years (n=3). The only two reports by younger siblings show age 12 (inhalants) and 14 (cannabis).

Only the prevalence of cannabis use is compared with other studies. Lifetime experience of cannabis use of older siblings in the sample was lower than the reported 35% for British 15-16 year olds in ESPAD 1999 (Hibell et al., 2001) and Scottish 15 year olds in HBSC 2002 (39.3% males, 35.4% females) (Currie et al., 2004). Similarly, lifetime prevalence of cannabis use among younger siblings was lower than for 13-15 year olds in the HBSC study (Todd, 2005: 27.2% males, 20.6% females) or for 12-15 year olds (15%) in Boreham and Shaw (2001).

5.3.3. Prevalence of Siblings' Supply of Substances

Alcohol was the substance that was offered by older siblings the most: 29.4% offered it to their sibling at least once. Cigarettes and cannabis were offered by one older sibling (0.9%) each (valid responses n=115 each). Younger siblings only ever offered alcohol (6.0%). Regarding the perception of being offered a substance, 7.0% of older siblings reported it for alcohol and 0.9% each for cigarettes and cannabis (valid responses n=115 each), whereas younger siblings only reported it for alcohol (24.9%). The congruence between older siblings *supply of alcohol*

and younger sibling's perception was significant and moderate (Kappa(115)=.44, p=.000), with no agreement on the reverse relationship (Kappa(115)=.07, p=.432).

5.3.4. Associations between Alcohol Use and Other Adolescent Issues

Chapter 1 already listed correlates and characteristics of adolescent alcohol use. Such factors are useful for validating participants' alcohol-related responses by demonstrating previously established relationships. Aspects include gender preferences of beverage types, association with tobacco and cannabis use, substance using peers, problem behaviour, school performance and school absenteeism, adolescents' financial resources, and pubertal development. Various statistical tests were used: chi squares for drinking pattern by gender, strength of association with Spearman's rho (non-normal distribution of variables), and univariate ANOVAs for alcohol use by pubertal maturation group. The empirical findings for older (OS) and younger siblings (YS) are briefly summarised as either confirming previous findings or not. Moreover, these associations need to be acknowledged as possible confounds for antecedents of adolescent alcohol use, though they are not the focus of this thesis.

- Gender-typical consumption patterns emerged only for older adolescents (beer and wine, not for spirits), confirming previous findings (Pavis, Cunningham-Burley, & Amos, 1998). More older males (62.7%) than older females (32.1%, n=56) consumed beer over the last 30 days ($\chi^2(1)=10.76$, p<.001), with a reverse pattern for the use of wine (55.4% females, n=56 versus 32.8% males, n=58; $\chi^2(1)=5.91$, p<.05).
- More frequent use of alcohol over the last 12 months was significantly associated with more frequent smoking (OS: R(115)=.38, p<.001; YS: R(115)=.28, p<.01) and cannabis use (OS: R(115)=.35, p<.001; YS: R(115)=.20, p<.05), confirming reports from other Scottish surveys (e.g. Boreham & Shaw, 2001).
- Adolescents' self-reported drinking frequency over the last 12 months was associated with perceived number of friends consuming alcohol (OS: R(115)=.53, p<.001; YS: R(115)=.64, p<.001) and perceived number of friends getting drunk (OS: R(115)=.31, p<.01; YS: R(115)=.41, p<.001). Similarly, adolescents' lifetime frequency of drunkenness was related to perceived peer drinking (OS: R(115)=.43, p<.001; YS: R(116)=.49, p<.001) and peer drunkenness (OS: R(115)=.29, p<.01; YS: R(116)=.47, p<.001). Corresponding relationships emerged for smoking (OS: R(116)=.36, p<.001; YS: R(116)=.51, p<.001) and

cannabis use (OS: R(115)=35, p<.001; YS: too few users). Overall, this confirmed that perceived friends' use is a strong concurrent variable for adolescents' own use (for reviews see Hawkins et al., 1992; Kandel, 1996; Petraitis et al., 1995).

- The problem behaviour incidence score and drunkenness (lifetime frequency) were only significantly interrelated for younger siblings (R(116)=.29, p<.01). This suggests that more deviant alcohol use may form part of a 'problem behaviour' syndrome (Jessor & Jessor, 1977; also Duncan et al., 2000; Farrell et al., 1992) but only for younger adolescents. Very few adolescents (3.5% or less) experienced problems due to their alcohol consumption: regretted sex (OS: 3.5%; YS: 1.7%) and unprotected sex (OS: 0.9%; YS: 0.9%), relationship problems (only OS: 1.7%) and trouble with the police (only OS: 0.9%).
- Alcohol use and perceived school performance were unrelated for older and younger siblings. However, older siblings who were at least one day truant from school reported significantly higher alcohol use (drinking frequency: t(39.40)=-3.36, p<.05); lifetime drunkenness: t(107)=-3.16, p<.05), partially confirming Miller and Plant's finding (1999).
- The amount of money spent per week was significantly related to the frequency of drinking (last 12 months: R(115)=.46, p<.001, drunkenness (lifetime: R(115)=.42, p<.001) and cannabis use (lifetime: R(115)=.20, p<.05) for older but only to lifetime frequency of drunkenness (R(116)=.25, p<.01) for younger siblings. Higher spending was associated with increased consumption (Currie, Elton, Todd, & Platt, 1997; Pavis et al., 1998).
- Late maturing females (M=-3.82) showed significantly less alcohol involvement than their early (M=-.48) and on-time (M=.72) maturing counterparts (F(2, 111)=3.40, p<.05; Tukey follow up p<.05), partially confirming the 'protective' effect of late maturation for girls (Alsaker, 1995; Kracke & Silbereisen, 1994; Stattin & Magnusson; 1990). The lack of differences among males confirms another Scottish study (Williams & Dunlop, 1999), but is inconsistent with American and Scandinavian reports (Alsaker, 1996; Andersson & Magnusson, 1990).

5.3.5. Summary

Overall, tobacco and illicit drug use were much lower in the present sample of adolescents than reported in large surveys. Although the proportion of adolescents having initiated alcohol use was similar to large survey findings, there were differences in consumption patterns. Adolescents in this study showed lower involvement in alcohol use than their counterparts from

large surveys in relation to experience and frequency of intoxication and generally less regular use. No gender differences emerged (except for older siblings' cannabis use only), indicating the convergence in males' and females' alcohol use (see Chapter 1). However, involvement in use of any substance was, as expected, higher among older than younger siblings.

There may be differences in consumption levels between the participating siblings and adolescents being surveyed in national studies, but similar associations with other aspects of adolescent life, as have frequently been reported, emerged. Still, comparisons with other studies are limited due to such reasons as age ranges sampled, questions and scales used (e.g. different recall periods, answering formats), places of data collection, etc., as has been discussed at the beginning of this chapter. Older siblings also appeared as a source of alcohol for their younger siblings. In general, adolescents in the present sample, similarly to their parents, represent a positive selection in terms of alcohol and other substance use.

5.4. Congruence of Self-Reports and Perceptions of Behaviour and Attitudes among Family Members

This section attends the second aim of this chapter, the agreement between different respondents on the same aspect of the family environment, and relates back to Chapter 4's design section. Self-reports of substance use should give a more accurate picture than perceptions by other family members. Parents' and adolescents' reports of parental (and sibling) attitudinal measures as well as of their relationship may well reflect a reality as experienced by the individual respondent. Therefore it is impossible to conclude who is right or wrong or who gives the more accurate information. If agreement between respondents is rather low, composting both reports into an aggregated measure may jeopardise the ecological validity of analyses using such composites (see Cox & Paley, 1997). Thus, it would be more appropriate to use either family member's report. Overall, this section serves the purpose of justifying the selection of variables for and approaches to analyses in Chapters 6 and 7. Measures relating to the alcohol-specific and non-alcohol-specific family factors are considered in the following two subsections.

5.4.1. Self-Reports and Perceptions of Substance Use and Attitudes

Inter-rater agreement was assessed with Cohen's Kappa for nominally scaled data (2x2 crosstabs) or Pearsons product moment (r) correlation coefficient for interval data. When the

normal distribution assumption was violated, Spearman's rho (R) correlation coefficient was employed. The focus was on tobacco, alcohol, and cannabis use as the most prominent substances consumed by this sample. Several substance use measures had very little variation (OS cannabis use; YS drunkenness, smoking) and were therefore dichotomised (used/did not use).

Adolescents' perception and parents' self-reports of substance use

Most older (98.3%) and all younger adolescents' perceptions agreed with their mothers' self-reports of smoking (OS: Kappa(116)=.91 and YS: Kappa(116)=1.00, both p<.001). Regarding father's smoking status, most adolescents' reports (OS: 97.4%; YS: 96.6%) were congruent with fathers' self-reports (OS: Kappa(116)=.90 and YS: Kappa(116)=.86, both p<.001). Adolescents and their parents also agreed to a large degree (all n=115, p<.001) on the frequency of mother's (OS: R=.75, YS: R=.66) and father's (OS: R=.75, YS: R=.66) alcohol consumption. They were, however, less certain regarding parental cannabis use: 51.8% of older (n=114) and 35.6% of younger siblings (n=115) reported not knowing whether or not their father ever used cannabis, with the corresponding figures of 48.7% and 32.2% (n=115 each), respectively, for mother's use. Correct identification of whether or not mother and father had ever used cannabis was provided by 6.1% and 8.8% older and by 9.6% and 17.4% younger siblings, respectively.

Parents' perception and adolescents' self-reports of substance use

Only adolescents' last 12 months' drinking and lifetime smoking, drunkenness and cannabis use were considered. Only few mothers and fathers used the 'don't know' category for the behaviours for older and younger siblings which were recoded as missing values for the following analyses. Parental perception and <u>older</u> adolescents' reports were significantly (all p<.001) but moderately related for adolescents' smoking (Mother: R(108)=.58, Father: R(106)=.48), alcohol use frequency (Mother: R(112)=.55, Father: R(108)=.60), and drunkenness (Mother: R(109)=.58, Father: R(110)=.53). Agreement was lower between parental perception and older sibling's report of cannabis use (Mother: Kappa(104)=.38, p<.001; Father: Kappa(106)=.21, p<.01). For <u>younger</u> siblings' use of substances, there was lower inter-rater agreement between parental perceptions and adolescents reports of smoking (Mother: Kappa(110)=.30, p<.001, Father: Kappa(108)=.18, p<.01), alcohol use frequency (Mother: R(114)=.45, p<.001, Father: R(110)=.38, p<.001), and drunkenness (Mother:

Kappa(116)=.25, p<.001, Father: Kappa(113)=.22, p<.01). Younger sibling's cannabis use was almost correctly identified by mother (except for 1/114), whereas all fathers (n=115) reported 'never'. Only few mothers and fathers used the 'don't know' category for the various substance use behaviours for older and younger siblings.

Self-reported and perceived alcohol norms and attitudes

Table 5.4 shows the relationship between parents' and adolescents' reports of parental drinking norms for older and younger siblings separately. The first two columns refer to correlations between parent reports and adolescent perceptions of norms, with the third column showing the association between mother and father report on the same child. These three 'cross-rater' associations indicate only moderate agreement, which were of quite similar magnitude. In contrast, adolescents perceived their parents as much more similar regarding the norms they set ('within-reporter' association, column four) than parents agreed in their self-reports (Schwarz et al., 1985).

Table 5.4. Pearson correlation (n) of parental self-report and adolescents' perception of parental drinking norms and cross-parent correlations

	Mother-Child	**Father-Child**	**Mo-Fa self**	**Mo-Fa perceived**
Older siblings	.33*** (115)	.36*** (114)	.35*** (115)	.93*** (115)
Younger siblings	.44*** (115)	.41*** (115)	.30** (114)	.98*** (113)

Note: Mo-Fa ... intercorrelation mother and father; ** p<.01, *** p<.001

Regarding attitudes towards substance use, agreement between self-report and perception varied by parent and sibling. Fathers' self-reported attitudes were not associated with either sibling's perception of them. Mother's self-report and either sibling's perception were significantly and positively associated (OS: R(116)=.46, p<.001; YS: R(116)=.40, p<.001), with the association being of moderate magnitude. Only younger sibling's perception of their older brother's or sister's attitude was significantly related to this sibling's self-report (R(116)=.40, p<.001).

Summary

Adolescents quite reliably assessed their parents' smoking and drinking behaviour but not their drug experiences. Parents were a less reliable source of information regarding their children's substance use, possibly due to the different scales used for parental and child reports on adolescent substance use. The comparison of congruence in norms and attitudes showed how much adolescents' perceptions diverge from norms and attitudes held by their parents and sibling.

5.4.2. Self-Reports and Perceptions of Family Relationships

The congruence of different reports regarding the marital, sibling and parent child relationship was explored in correlational analyses. Parents agreed only moderately in their assessment of the quality of the marital relationship ($r(114)=.35$, $p<.001$). Siblings' agreement was slightly greater for sibling warmth ($r(116)=.54$, $p<.001$) than conflict ($r(116)=.36$, $p<.001$). Pearson correlations on parental monitoring, warmth, and negativity are presented in Table 5.5 for each child.

As shown in Table 5.5, parent-adolescent congruence (columns I and II) was greatest for warmth, followed by monitoring, and lowest regarding negativity toward older siblings, with younger siblings' perception of negativity not being related to parental reports. In general, adolescents and parents agreed only moderately on their relationship, confirming previous findings (Cottrell et al., 2003; Schwarz et al., 1985; Sweeting, 2001). Agreement between mother's and father's report of their relationship with each child was of small magnitude (column III). Adolescents perceived high congruence between their relationships with each parent (column IV); this was even more pronounced among younger siblings than their older counterparts. Adolescents reported more similarity in their mothers and fathers' parenting then parents did themselves (Schwarz et al., 1985; Spotts, Neiderhiser, Reiss, Hetherington, & Plomin, 1999).

Table 5.5. Pearson correlations for parent and adolescent reported parent-child relationship

	Older sibling				Younger sibling			
	I Mother	**II Father**	**III Mo-Fa self**	**IV Mo-Fa perceived**	**I Mother**	**II Father**	**III Mo-Fa self**	**IV Mo-Fa perceived**
Mon	.43***	.43***	.28**	.88***	.29**	.33***[a]	.17	.95***[a]
W/S	.56***[a]	.43***[a]	.20*[b]	.72***	.42***[c]	.36***[c]	.20*[b]	.84***[b]
C/N	.26**	.25**[a]	.32**[a]	.57***	.10	.14[a]	.28**[a]	.75***

Note: Mon ... monitoring, W/S ... warmth/support, C/N ... conflict/negativity, Mo-Fa ... intercorrelation mother and father; * p<.05, ** p<.01, *** p<.001; [a] n=115, [b] n=114, [c] n=113, no index N=116

Summary

It was shown that the parents' and adolescents' reports regarding family relationships were rather more different than similar. Members of dyads (siblings, parent-child) tended to agree more on positive aspects than on negative aspects of their relationship. Adolescents also perceived much greater similarity between their parents than mother and father actually reported in treating their offspring. Again, 'within-rater' associations far exceeded 'cross-rater' ones in magnitude.

5.5. Summary and Discussion

This chapter's aims were twofold: to establish the representativeness of the sample in terms of alcohol and other substance use; and to determine the agreement of different respondents on the same aspect of the family environment as a basis for using multiple respondents. In relation to the first aim of describing the level of alcohol use and related issues, the findings from the previous sections can be summarised in the following way.

First, parents as well as adolescents were not representative of the general British or Scottish population. They rather represent a positive selection in regard to their alcohol, tobacco, or illicit drug use. Most parents seemed to endorse a high-frequency-low-quantity, continental drinking pattern, which may reflect their middle to upper middle class background (Shaw et al., 2000). Second, only few differences due to gender or social class and education emerged. Mothers consumed alcohol less often then fathers, though their drinking was associated,

confirming previous research (see Ahlström, 1999 for a discussion). The typical social class gradient for adult smoking (e.g. SHeS 1998, Shaw et al., 2000) was not found, also not for educational attainment. However, social class was associated with parental alcohol use and education with parents' drug use and fathers' drinking. The lacking association for higher education and female drinking may be due to a 'reduction effect' of marriage and motherhood (Ahlström, 1999). Male and female adolescents did not differ in alcohol and tobacco use, but older males used cannabis more frequently. Third, despite the middle class nature of the sample certain general associations of adolescent alcohol use could be confirmed. They included interrelation of use of various substances, associations between adolescents' own use and perceived peer use and problem behaviour, and older siblings' alcohol use with truancy and financial resources.

Relating back to this chapter's introduction, the comparison with national surveys only served the purpose of 'locating' the drinking behaviour of the participating families because of the different method used in this study as compared to health behaviour surveys. Overall, the sample is not highly representative of the general population. Furthermore, findings cannot be applied to families with excessive or abusive alcohol consumption patterns.

The second major aim has a more methodological background. Comparing reports of parents and their children on substance use and attitudes indicates that self-reports appear to be a more reliable source. Whereas adolescents were relatively well informed about their parents' alcohol use and smoking, parents had less knowledge of their children's substance use. This finding may be due to the different scaling used as well as adolescents' secrecy about their activities. Agreement regarding norms and attitudes was low to moderate and indicates the need for clearer communication from parent to child (see also Chapter 8). The congruence between various respondents on family relationship measures shows how different each individual family member perceives the same situation and constructs a different reality (e.g. Furman, Jones, Buhrmester, & Adler, 1988, p. 179). Thus, it seems legitimate to use individual reports and repeated analysis for the various respondents (Sweeting, 2001).

5.5.1. Conclusion

In general, the present sample represents a positive selection of families in relation to alcohol use and is therefore not representative, supporting a similar conclusion on family background as reported in Chapter 4. Since levels of alcohol (and other substance) use are not key to this thesis, the lower prevalence should not influence the associations that are the focus in Chapters 6 and 7. Moreover, a nationally representative sample was not aimed for within the remits of this thesis.

Based on the examination of inter-rater agreement it is justified to rely on individual family members' self-report of their drinking behaviour as will be done in Chapters 6 and 7. Agreement was of small to moderate magnitude between respondents on attitudinal measures (e.g. parental drinking norms) and family relationship measures (e.g. conflict). Thus, it is advisable to consider both respondents' perspectives (parents and adolescents) for the investigation of the family environment regarding adolescent alcohol use. With no indication whose perspective is more valid (Schwarz et al., 1985) and to avoid results based on 'shared method variance' due to single respondent data (Sweeting, 2001; see Chapter 4), repeated analyses for different respondents will be undertaken in the following two empirical chapters. Thereby, Chapter 6 turns to alcohol-specific family factors and family dyads and Chapter 7 to the non-alcohol-specific environment in relation to various family subsystems.

CHAPTER 6

PARENT AND SIBLING INFLUENCES ON ADOLESCENT ALCOHOL USE: A SOCIAL LEARNING APPROACH

6.1. Introduction

The empirical analyses presented in the previous chapter have not yet addressed the aims of this thesis. They, however, provide an important background for the main investigations: representativeness of the sample's substance use and rater choice. This chapter presents the first part of the main empirical analyses: examining the role of alcohol-specific family factors in relation to adolescent alcohol use. As outlined in Chapters 1 and 2 this area of family influence draws upon social learning principles (Kandel & Andrews, 1987). Accordingly, parents and siblings have been identified as significant role models for adolescent alcohol use within families (e.g. Ary et al., 1993; Foxcroft et al., 1999; Hellandsjø Bu et al., 2002; Rowe & Gulley, 1992). Their influence has been considered in terms of actual drinking behaviour, attitudes, and norms (Ary et al., 1993; Brody et al., 1998; Foxcroft et al., 1999; Peterson et al., 1994) as reviewed in Chapter 2. The aim of this chapter is to examine the proposed associations of parent and sibling influence on adolescent alcohol use in Figure 2.2 (Figure 6.1 below). This chapter provides a brief summary of the reviewed empirical evidence in Chapter 2 (see also Chapter 3 for sibling relations), resulting in the formulation of research questions. In subsequent sections, methods of analyses and results are presented. The chapter concludes with a summary and discussion of the findings.

6.2. Summary of Evidence and Research Questions

Chapter 2 showed that both parents and siblings appear to influence adolescent alcohol use through their drinking behaviour, attitudes and norms (e.g. Ary et al, 1993; Duncan et al., 1996; Hellandsjø Bu et al., 2002; Needle et al., 1986; Rowe & Gulley, 1992; Vakalahi, 2001). It also discussed possible moderating factors which may facilitate family members becoming increasingly similar in their alcohol use. Possible associations between these alcohol-specific family factors and modulating influences have been proposed in the model in Figure 2.2 which

is repeated here as Figure 6.1. The paragraphs below summarise the empirical evidence in support of this model and formulate the research questions investigated in this chapter.

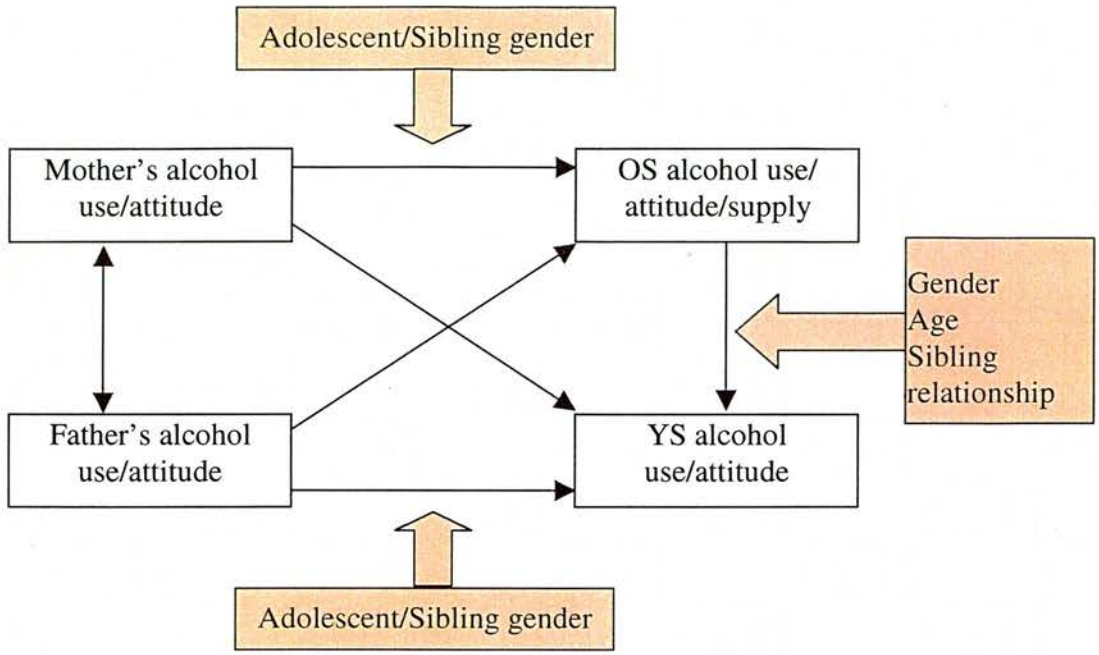


Figure 6.1. A social learning model of adolescent alcohol use: parents, siblings, and moderators

In relation to *parental* influence, mothers' and fathers' alcohol use are considered separately though they are associated with each other (double-headed arrow; see Chapter 5). Parental alcohol use and attitudes were found to influence adolescent drinking behaviour and attitudes (Ary et al., 1993; Brody et al., 1998; Engels & van der Vorst, 2003; Hellandsjø Bu et al., 2002). Some evidence even suggests greater importance of parental attitudes and norms over their drinking behaviour in affecting adolescents' use (Foxcroft et al., 1999; Peterson et al., 1994). In the transmission of alcohol use from parent to child, sex of parent and child was found to moderate the strength of the association (beige fields). Both gender-symmetrical (e.g. Wickerama et al., 1999; Yu & Perrine, 1997) and a variety of gender-asymmetrical patterns (e.g. Andrews et al., 1997; Cooper et al., 1995) were found. Various theoretical perspectives have been used to explain these diverse gender-related findings (see Chapter 2). They include social learning theory itself (Bandura, 1977), gender socialisation perspectives (e.g. see McHale et al., 1999), parent-child identification (Brook et al., 1984, 1986; Schachter, 1982), gender

vulnerability and role salience (e.g. Conger & Rueter, 1996; Cooper et al., 1995). Moreover, mother and father's alcohol and substance use may not equally affect children's use as research designs with siblings suggest (Conger & Rueter, 1996; Conger et al., 1994). This indicates that this objectively shared environment is not necessarily an effectively shared experience for siblings (Hoffman, 1991). There is also an indication that the gender combination of the sibling dyad influences parental socialisation efforts (e.g. Crouter et al., 1995). Thus sibling gender combination may provide a context for parental attitudes and sanctions regarding alcohol use.

In turning to *older siblings*, they influence adolescent alcohol use not just as a model for behaviour (Ary et al., 1993; D'Amico & Fromme, 1997; McGue et al., 1996a), but also through actively advocating substance use by supplying their younger siblings with alcohol/drugs (Brook, Whiteman et al., 1990). Siblings' demographic similarity (same sex, similar age) increases their resemblance in substance use (McGue et al., 1996a; Rowe & Gulley, 1992). Siblings also seem to resemble each other on attitudinal measures (Brody et al., 1998; D'Amico & Fromme, 1997). As the social processes fostering sibling similarity in alcohol use, positive and negative aspects of the sibling relationship were examined. Rowe and Gulley (1992) demonstrated that warm mutual sibling relationship and having mutual friends ('partners in crime' model) as well as a conflictual sibling relationship ('siblings as key pathogens' model) increase sibling similarity in substance use and delinquency. In relation to substance use stronger support comes for the 'partners in crime' model (Rowe & Gulley, 1992).

Despite the richness of research on social learning of alcohol use among family members, the present investigation aims to fill several research gaps, which have been outlined in detail in Chapter 2. Thus, the empirical analyses in this chapter address the general lack of British family-related research on adolescent alcohol use by focusing on parental influence in relation to two adolescent siblings and exploring older siblings' effects. The analyses expand on gender influences as moderators and on attitudes, norms and sibling supply of alcohol as rather scant research areas. This chapter further attempts to replicate Rowe and Gulley's (1992) study of processes conditioning sibling resemblance in substance use in relation to adolescent drinking. The use of multiple informants instead of the common single respondent approach (see Chapter 5 for inter-rater congruence) also extends the methodological scope of many British studies. With the majority of findings originating in US American research, it is a challenge to explore

them within the Scottish context. Based on the reviewed theoretical concepts and empirical evidence, five sets of research questions were formulated:

1. **Are mothers and fathers' alcohol use, attitudes and norms associated with concurrent adolescent alcohol use and attitudes? Does such a relationship hold for younger and older siblings as well as male and female adolescents?**

2. **Do mothers' and fathers' alcohol use and drinking norms predict older and younger siblings' alcohol use? Does the antecedent-consequence relationship vary by adolescent sex and sibling status?**

3. **Does sibling gender (dis)similarity provide a context for parents approach in setting norms or sanctions for alcohol use for siblings?**

4. **Are older siblings' alcohol use, alcohol supply and attitudes related to younger siblings' drinking behaviour and attitudes? Do age and gender similarity moderate the associations?**

5. **Does sibling relationship quality (warmth, conflict, having mutual friends) condition sibling similarity in alcohol use? This means: can the findings by Rowe and Gulley (1992) be replicated with Scottish siblings regarding their alcohol use?**

These research questions are investigated in empirical analyses in the following sections. Since parental and sibling influences are considered in different, succinct questions, it appears appropriate to group them into a *parent* and a *sibling* section. Each section provides methods of analyses, findings and a summary. In a final section, results on parental and sibling effects are integrated and discussed.

6.3. Social Learning of Alcohol Use: From Parents to Adolescent Siblings

Parental drinking behaviour, attitudes and norms were shown to be related to adolescent alcohol use and attitudes (Ary et al., 1993; Brody et al., 1998; Foxcroft et al., 1999; Peterson et al., 1994). Both parental alcohol use and attitudinal measures predict adolescent drinking

behaviour, with some indication of a stronger effect of parental attitudes. In the parent-child transmission of alcohol use sex of parent and child seems to be an important moderator but findings are inconsistent. Parents' drinking norms and responses to adolescent alcohol use may depend on the context of sibling gender. Based on this background, the following specific working hypotheses were formulated.

1. Alcohol use is transmitted from parent to child through social learning.
   a) Increased parental consumption is related with increased adolescents' use.
   b) Less strict parental norms and liberal parental attitudes are related with increased adolescent alcohol use and liberal attitudes.

   For each hypothesis the pattern is investigated for gender symmetry or asymmetry in relation to the developmental stage of siblings (older vs. younger).
2. Parental drinking and child-specific norms predict older and younger siblings' alcohol use. Similarity of models for males and females is examined.
3. Differences are expected between families with same-sex versus opposites-sex sibling pairs in siblings' experience in regard to norms and perceived sanctions of alcohol use.

6.3.1. Method of Analysis

To explore the *first question*, correlational analysis was employed to examine adolescent alcohol use in relation to a) parental alcohol consumption and b) parental norms and attitudes, whereas adolescent attitudes were only studied in regard to parental attitudes. The following variables were selected:

- Alcohol use: parents' drinking frequency; adolescents' drinking frequency over past 12 months and lifetime frequency of intoxication
- Attitudes toward substance use: parents' (P-ATT) and adolescents' (C-ATT) self-report; adolescents' perception of parents' attitude (PP-ATT)
- Child-specific alcohol norms: parents' self-report (P-AN); adolescents' perception of parental norms (PP-AN)

For parental and adolescent alcohol use only self-reports were used. To investigate gender influences, the analyses were carried out separately for male and female siblings and mother and father.

For the *second research question*, multiple regression analyses were computed. These included parent reports of their drinking frequency and child-specific norms as predictors and adolescents' self-reported drinking frequency over the last 12 months as outcome measures. Self-reports were chosen to avoid the method confound of having information from the adolescent on both sides of the regression equation (Rowe & Gulley, 1993; Sweeting, 2001). Following the tradition of other studies in investigating sex interaction patterns (e.g. Conger & Rueter, 1996, Conger et al., 1994; Wickerama et al., 1999), the analyses were run separately for mothers and fathers and for male and female siblings leading to four separate analyses each for older and younger siblings. Due to insufficient empirical evidence and the exploratory nature of this analysis, no a priori assumptions about the order of variable entry were made. On this basis the Stepwise selection of variables was employed. In the Stepwise procedure the predictors are entered into and removed from the model based on mathematical criteria, not based on a theoretical assumption about their order (Field, 2000; Miles & Shevlin, 2001).

Question 3 asked: 'Are there between-family differences in within-family experience?' The two different family contexts considered were families with same-sex and families with opposite-sex siblings. Differences in alcohol norms as a function of sibling gender similarity were investigated using 2 (same- vs. opposite-sex) x 2 (sibling status) analyses of variance. Thereby, the responses for alcohol norms regarding younger and older siblings were treated as a repeated measure (see Rovine, 1994). Analyses were computed separately for each parent's self-report and again for siblings' perception of mother's and father's norms, resulting in four analyses. Parent and sibling reports were used to explore whether the contextual influence of sibling sex similarity matters to parents or to siblings' perception.

Because perceived sanctions for alcohol use were measured on an ordinal scale, statistical analyses for non-parametric data was used. Without a non-parametric equivalent to repeated measures ANOVAs, the between- and within-subject analyses were computed separately. To test for differences between same- vs. opposite-sex siblings, Mann-Whitney U-tests were employed in regard to older and younger siblings' reports on mother and father. For the within-subjects differences, Wilcoxon Signed Rank tests with older and younger siblings' perceived parental sanctions for alcohol use as the related measure were examined separately for mother and father.

6.3.2. Results Question 1: Associations between Parental and Adolescent Alcohol Use and Attitudinal Measures

Findings here include the association between parental and adolescent alcohol use as well as between parental attitudes and norms and adolescent alcohol use and attitudes. Because of exploring moderating influences of gender, results are presented in the following order: findings on the overall subsamples of older and younger siblings are reported first, followed by results on older siblings and then younger siblings as a function of sex.

Parental alcohol use and adolescent drinking

By considering older and younger siblings *overall* as shown in Table 6.1, mother's frequency of alcohol consumption seemed only to be correlated with the different aspects of older adolescent's, but not younger adolescents', drinking behaviour. The positive relationship indicates that frequent maternal consumption was associated with older adolescents' excessive and frequent (marginally only) use. Similarly, father's alcohol consumption was only related to older siblings' drinking frequency and marginally with drunkenness but not with any aspect of younger siblings' drinking.

Table 6.1. Pearson correlations (n) of mothers and fathers' frequency of alcohol use with older and younger siblings' drinking behaviour: Overall and by sex

	Mother's frequency with		**Father's frequency with**	
	Frequency	**Drunkenness**	**Frequency**	**Drunkenness**
Older: all	*.18^{+} (114)*	***.21**** *(114)*	***.26**** *(114)*	*.16^{+} (114)*
Older: male	**.35**** (58)	**.39**** (58)	**.29*** (57)	**.30*** (57)
Older: female	-.02 (56)	-.09 (56)	.22 (57)	-.05 (57)
Younger: all	*.10 (114)*	*.07 (115)*	*.11 (114)*	*.16^{+} (115)*
Younger: male	.23^{+} (56)	.21 (57)	**.39**** (56)	.22^{+} (57)
Younger: female	-.02 (58)	-.13 (58)	-.18 (58)	.05 (58)

Note: $^{+}$ p<.10, * p<.05, ** p<.01, *** p<.001

The few significant results suggest a rather weak influence of parental alcohol use. The small size of association or its diminished strength could be due to interaction effects of parent and child sex as is indicated by the findings on sibling sex in Table 6.1. It needs to be

acknowledged that the gender split reduced the size of the analysis groups, decreasing the chance of a correlation to achieve significance. Moreover, in sample sizes below one hundred, correlation coefficients need to be treated with caution (Kline, 1994, p.20).

Significant relationships between parental and older adolescents' alcohol use emerged only for male adolescents. Both older males' frequency of use and drunkenness were associated with mothers' and fathers' alcohol use. For younger males, fathers' use was more strongly related to their drinking behaviour (one significant and one marginally significant correlation) than mother's use. These findings support the assumption that there is a gender difference between male and female adolescents. Gender symmetry in parent to adolescent influence, however, could not generally be demonstrated and may only hold for younger male adolescents and their fathers.

Parental attitudes and norms and adolescent drinking and attitudes

Findings on parents' attitudinal measures in relation to adolescents' drinking and attitudes are shown in Table 6.2. Mothers' norms and attitudes, both self-reported and perceived, were significantly associated with the different aspects of older siblings' drinking. As expected, higher disapproval of substance use and stronger norms against drinking by mothers were related to lower drinking frequency and less frequent lifetime drunkenness. Similar significant associations emerged for fathers' measures, again in the predicted direction, except for fathers' self-reported attitudes. For younger siblings the pattern differed slightly. Only mothers' and fathers' norms were significantly related to younger adolescents' alcohol consumption. Stricter norms against alcohol use by either parent were associated with lower drinking frequency and less drunkenness. Generally, among older and younger siblings, adolescents' perception of parents' norms tended to be more strongly associated with drinking behaviour than the actual self-reports.

Regarding adolescent attitudes, those endorsed by older adolescents were significantly associated with parental attitudes. The perception of mother's and father's attitudes was more strongly associated with adolescents' disapproval than parents' actual self-report (Mother: r=.38 vs. r=.54; Father: r=.20 vs. r=.45). Similarly, younger siblings' attitudes were significantly related with parental attitudes, except for father's self-reported disapproval attitudes.

Table 6.2. Pearson correlation of adolescent alcohol use (frequency, drunkenness) and attitudes with mothers' and fathers' alcohol norms and attitudes

	Older siblings			**Younger siblings**		
	Frequency	**Drunk**	**C-ATT**	**Frequency**	**Drunk**	**C-ATT**
Mother						
P-AN	**-.32**[a]	**-.27**[a]		**-.27**[a]	**-.25****	
PP-AN	**-.43***[b]	**-.49***[b]		**-.31**[b]	**-.41***[a]	
P-ATT	**-.29**[a]	**-.30**[a]	**.38***	-.15[a]	-.14	**.39***
PP-ATT	**-.34***[a]	**-.34***[a]	**.54***	-.05[a]	-.00	**.42***
Father						
P-AN	**-.32**[a]	**-.19***[a]		**-.28**[c]	**-.24***[b]	
PP-AN	**-.42***[b]	**-.47***[b]		**-.32**[b]	**-.42***[a]	
P-ATT	-.15[b]	-.06[b]	**.20***[a]	-.16[+b]	-.02[a]	.10[a]
PP-ATT	**-.28**[a]	**-.37***[a]	**.45***	-.10[b]	.02[a]	**.40***[a]

Note: AN ... alcohol norms, ATT ... attitudes, C- ... child reported, P- ... parent reported, PP- ... child's perception of parent; [a] N=115, [b] N=114, [c] N=113, no index N=116;
[+] p<.10, * p<.05, ** p<.01, *** p<.001

Findings on the parent-child gender interaction for older and younger siblings are presented in Table 6.3. As with parental drinking, mothers' norms and attitudes showed a stronger relationship with older males' than older females' drinking behaviour. For males, almost all examined relationships with mother and father variables (except for fathers' self-reported attitudes) reached significance and were in the expected direction. The results indicated only borderline significance for females. Among younger siblings the pattern was different. Significant relationships emerged primarily for parental norms. For younger males, only perceived parental norms were significantly associated with their drinking behaviour. In contrast, younger females' drinking was mainly related to parents' self-report, though the magnitude of the effect was smaller than in the analyses on younger males, indicating borderline significance. Older and younger adolescent attitudes, independent of adolescents' sex, were significantly related to mother's attitudes (both self-reported and perceived), but only to the perception of fathers' disapproval attitudes.

Table 6.3. Pearson correlation of older and younger adolescents' alcohol use and attitudes with mothers and fathers' alcohol norms and attitudes by sex

	Male siblings			Female siblings		
	Frequency	**Drunk**	**C-ATT**	**Frequency**	**Drunk**	**C-ATT**
Older sibling - Mother						
P-AN	**-.47*****[b]	**-.43****[b]		-.18	-.03	
PP-AN	**-.65*****[c]	**-.60*****[c]		-.22[+]	**-.31***	
P-ATT	**-.50*****[b]	**-.54*****[b]	**.39****[a]	-.02	.12	**.35****
PP-ATT	**-.44****[b]	**-.57*****[b]	**.61*****[a]	-.24[+]	-.02	**.46*****
Older sibling - Father						
P-AN	**-.46*****[b]	**-.34****[b]		-.16	.05	
PP-AN	**-.65*****[c]	**-.57*****[c]		-.18	**-.28***	
P-ATT	-.23[+c]	-.15[c]	-.24[+b]	-.08	.17	.09
PP-ATT	**-.32***[b]	**-.56*****[b]	**.49*****[a]	-.23[+]	-.03	**.40****
Younger sibling - Mother						
P-AN	-.26[+d]	-.22[c]		**-.29***[a]	**-.30***[a]	
PP-AN	**-.42****[d]	**-.47*****[c]		-.20[b]	**-.30***[b]	
P-ATT	**-.32***[d]	-.19[c]	**.42****[c]	.01[a]	-.08[a]	**.37****[a]
PP-ATT	-.15[d]	-.10[c]	**.36****[c]	.02[a]	.09[a]	**.55*****[a]
Younger sibling - Father						
P-AN	-.23[+e]	-.22[d]		**-.31***	**-.27***	
PP-AN	**-.42****[d]	**-.46*****[c]		-.20	**-.35****	
P-ATT	-.21[d]	-.03[c]	.10[c]	-.08	.10	.03
PP-ATT	-.19[d]	-.02[c]	**.34****[c]	-.01	.07	**.52*****

Note: AN … alcohol norms, ATT … attitudes, P- … parent reported, PP … child's perception of parent; [a] N=59, [b] N=58, [c] N=57, [d] N=56, [e] N=55; OS females all n=57, YS females – father all n=58; [+] p<.10, * p<.05, ** p<.01, *** p<.001

Summary

Gender symmetry in parent to adolescent influence (mother to daughter, father to son) between parents' and siblings' measures was not demonstrated for either actual drinking behaviour or attitudinal measures. However, different patterns for parent and sex of sibling emerged.

Significant associations were largely only discovered for male adolescents. Older males' alcohol use was related to parents' drinking frequency, norms and attitudes, the latter particularly in mother-older male pairs. Younger males' alcohol use was associated with fathers' use and perceived parental norms. Alcohol-specific norms were generally more strongly linked with the different aspects of drinking behaviour than general attitudes disapproving of substance use. Mothers' attitudes, both self-reported and perceived, were associated with older and younger adolescents' attitudes, independent of child gender. For fathers, a similar relationship was only found for adolescents' perception of his attitudes. Thus, the findings also stress the importance of children's perceptions of parental norms and attitudes. The next step in the empirical analyses explores the relative importance of parental alcohol use and norms for adolescent drinking behaviour.

6.3.3. Results Question 2: Predicting Older and Younger Siblings' Alcohol Use from Parents' Drinking Behaviour and Norms

Before constructing a complex prediction model, the relationship between the alcohol measure and age was investigated because alcohol use is known to increase with age (see Chapter 1). Thus, age may be an important predictor of siblings' alcohol use and must be taken into account to ensure differences between younger and older siblings are not merely a function of age. As expected, the relationship between age in years and drinking frequency was substantial for older (males: $r(58)=.43$, $p<.01$; females: $r(57)=.51$, $p<.001$) and younger siblings (males: $r(56)=.48$, $p<.001$; females: $r(59)=.40$, $p<.01$). Therefore, age was entered first in all regression models (Step 1), followed by parental drinking frequency and norms (Step 2) by Stepwise selection. Model fit, explained variance (R^2), and standardised regression coefficients are reported for the model containing age and for the final model.

Findings for <u>older</u> females show that only their age, but none of the parental measures, predicted alcohol use over the past 12 months, explaining 28% and 26% of the variance in the models for mothers ($F(1, 54)=21.45$, $p<.001$; beta (age)=.53) and fathers ($F(1, 55)=19.41$, $p<.001$; beta (age)=.51), respectively. For older males, a different picture emerged as is shown in Table 6.4. Self-reported parental norms and drinking significantly predicted frequency of alcohol use by older males, after controlling for age. The models explained almost 40% of the variance in

drinking frequency by age, parents' norms and behaviour. Age accounted for about half of the explained variance.

Table 6.4. Regression (Stepwise): Parental alcohol use (P-AU) and parental norms (P-AN) predicting older and younger males' drinking frequency

Model	R^2 (total)	F (df_1, df_2)	Beta age	Beta P-AU	Beta P-AN
Older males - mother	.19**	12.81 (1, 56)	.43**		
	.38* **	**11.21 (3, 54)**	**.36****	**.24***	**-.32****
Older males - father	.18**	12.00 (1, 55)	.42**		
	.39* **	**11.31 (3, 53)**	**.40****	**.26***	**-.32****
Younger males - mother	.23***	16.19 (1, 54)	.48***		
	.29* **	**10.65 (2, 53)**	**.48*** **	**.24***	
Younger males - father	.24***	16.58 (1, 53)	.49***		
	.34* **	**13.41 (2, 52)**	**.44*** **	**.32****	

Note: final model in bold print; * p<.05, ** p<.01, *** p<.001

Similarly to their older counterparts, age was again the only significant predictor for younger females' drinking frequency and explained 16% and 17% of variance in the model for mothers ($F(1, 56)=10.64$, $p<.01$; beta (age)=.40) and fathers ($F(1, 56)=11.35$, $p<.01$; beta (age)=.41), respectively. Younger males showed a different pattern (see Table 6.4). In addition to age, parents' actual drinking behaviour, but not parental norms, significantly predicted child outcome. These models explained about 30% of variance in drinking frequency.

Summary

Similar patterns emerged for older and younger females. Females' drinking frequency over the last 12 months was best predicted solely by age. Among male adolescents, in addition to age, parental drinking predicted the drinking frequency for older and younger males; parental norms were a further predictor for older males only. With gender playing such an important role in

moderating the strength of associations, it remains to be answered whether parents' setting of norms and sanctions is affected by siblings' gender combination.

6.3.4. Results Question 3: Sibling Gender (Dis)Similarity as a Context for Parental Alcohol Norms and Sanctions

In the questionnaire, parents were asked which alcohol norms they apply for each sibling (i.e. the degree of consumption deemed acceptable in diverse situations) considering each child's current age. Thus, as a first step, it was examined whether child's age was associated with alcohol norms. Table 6.5 shows means and standard deviations as well as the correlation coefficients between child's age and norms for the subgroups. Because the individual relationships were small to moderate (at its maximum, age explained 16% in the variation of norms: younger sibling reporting on mother), age was not included in the model as a covariate.

Table 6.5. Parent and adolescent reported parental drinking norms: Correlation coefficients with age and mean (standard deviation, N) by sibling status and gender similarity

	Pearson r age[a]-norm (N)		**Same-sex siblings Mean (SD, N)**		**Opposite-sex siblings Mean (SD, N)**	
	OS	**YS**	**OS**	**YS**	**OS**	**YS**
Mother self	-.22* (116)	-.18* (116)	23.54 (4.33, 55)	26.90 (4.82, 55)	21.64 (3.73, 61)	26.11 (4.73, 61)
Father self	-.18^{+} (115)	-.30** (114)	22.74 (4.60, 54)	25.52 (5.04, 54)	21.98 (4.50, 61)	25.82 (5.11, 60)
P – Mother	-.27** (115)	-.40*** (115)	20.98 (4.86, 54)	26.69 (4.73, 54)	19.62 (4.34, 61)	24.49 (5.24, 61)
P - Father	-.34*** (115)	-.38*** (115)	21.02 (4.90, 54)	26.65 (4.74, 54)	20.11 (4.70, 61)	24.34 (5.20, 61)

Note: P - ... child's perception of; [a] ... age in years
$^{+}$ p<.10, * p<.05, ** p<.01, *** p<.001

Findings from the repeated measures ANOVAs on alcohol norms are presented in Table 6.6. Interaction effects between sibling gender group and status were of main interest but no significant effects were found for alcohol norms. Significant main effects emerged for the

within-subjects factor (independent of the reporter) and for the between-subjects factor (adolescents' perception, mother report marginal). This indicates that younger siblings in either group experienced stricter norms regarding alcohol consumption than their older brothers and sisters. Siblings in opposite-sex pairs perceived less strict norms than their counterparts in same-sex sibling pairs.

Table 6.6. Repeated measures ANOVAs for alcohol norms: Sibling status (within-subjects factor) by same-sex vs. opposite sex siblings (between-subjects factor) (df_1=1)

Reporter	**Df_2**	**Between subjects F**	**Within subjects F**	**Interaction**
Mother - self-report	114	3.34^{+}	**117.01*****	2.38
Father - self-report	112	.10	**65.40*****	1.80
Sibs report on mother	112	**5.93***	**88.29*****	.80
Sibs report on father	112	**4.58***	**74.66*****	1.90

$^{+}$ p<.10, * p<.05, *** p<.001;

Table 6.7 (see following page) provides the findings on perceived parental sanctions. The results from the Mann-Whitney U-test indicate that group differences only exist for older siblings' perception of consequences of alcohol use by mother. Older siblings in same-sex pairs perceive more sanctions of their alcohol use by mother than their counterparts in opposite-sex pairs. However, after Bonferroni correction this significant group effect disappeared. Older and younger siblings perceived significant differences in sanctions by mother and father in both same- and opposite-sex pairs (Wilcoxon Signed Rank test), even after correcting the alpha-level. Younger siblings reported higher levels of perceived sanctions than their older brothers and sisters.

Summary

Whether an adolescent was an older or younger sibling in a same- or opposite-sex pairs did not seem to alter how strict parents set child-specific norms regarding alcohol use or how children perceive sanctions for alcohol use by parents. Younger siblings in general experienced stricter norms for alcohol and perceived more sanctions for alcohol use from their parents than their

older counterparts. Siblings in opposite-sex pairs, as compared to same-sex pairs, perceived generally lower parental norms.

Table 6.7. Between- and within-subject differences in perceived sanctions for alcohol use: Older and younger siblings in same- vs. opposite-sex pairs

Between subjects: same- vs. opposite-sex pairs (Mann-Whitney U-test)				
		Same-sex pairs	**Opposite-sex pairs**	
	U	Mean rank	Mean rank	
OS on mother	**1174.50***	63.75	49.75	
YS on mother	1123.50	54.03	48.03	
OS on father	1207.00	59.23	49.95	
YS on father	1114.50	54.15	47.79	
Within subjects: Older and younger sibling (Wilcoxon Signed Rank test)				
	Same-sex pairs		**Opposite-sex pairs**	
	Z	Mean OS, YS	Z	Mean OS, YS
Mother	**-4.72*** [b]**	6.32, 7.62	**-5.15*** [b]**	5.69, 7.39
Father	**-4.56*** [b]**	6.26, 7.67	**-4.62*** [b]**	5.82, 7.44

* p<.05, *** p<.001; [b] Bonferroni corrected α-level=.00625 (.05/8 analyses)

6.3.5. Overview: Parental Influence on Adolescent Alcohol Use

The analyses based on the three research questions regarding parental influences on siblings' alcohol use indicate that overall gender symmetry in the transmission of alcohol use from parent to child is not evident. Intrafamilial similarity seems to exist only among sons and their parents. Significant associations emerged only between parental alcohol use and older and younger (father only) males' drinking but not for females. In relation to attitudinal measures, only younger but not older females' alcohol use was related to parental norms. Older males' drinking was associated with parental norms and attitudes, but younger males' use showed fewer significant relationships and only for perceived norms. Intrafamilial similarity in attitudes towards substance use was found between adolescents and their mothers and fathers (perceived attitude only).

The correlational findings were mirrored by the regression results. Female adolescents' alcohol use was only predicted by their age. For male adolescents the picture was more differentiated. In addition to age, males' drinking frequency was predicted by parental drinking and for older males also by norms. This suggests that norms may become more important when adolescents are more likely to drink outside the home (after the age of 15) and parental guidance persists in the form of norms they set for their children's behaviour. Moreover, the present study seems to confirm findings of greater male vulnerability to parental alcohol use (Cooper et al., 1995; Weitzman & Wechsler, 2000).

Regarding the possible influence of gender similarity, no interaction effects were discovered, suggesting that gender similarity of sibling pairs does not change the relationship of norms nor perceived sanctions for older/younger sibling status. There were few differences between same- and opposite sex siblings in their perception of norms but none regarding sanctions. Unsurprisingly, younger siblings received and reported stricter norms and expected worse sanctions from their parents when using alcohol as compared to their older counterparts. After exploring the role of mother and father for each sibling's social learning of alcohol use, the role of older siblings for their younger siblings' drinking behaviour is now turned to.

6.4. The Effects of Older Siblings on Younger Siblings' Alcohol Use

Chapter 2 discussed that siblings provide an environment for one another, resulting in sibling resemblance in alcohol use. Older siblings function as models, suppliers and provide standards with their attitudes (Ary et al., 1993; Brody et al., 1998; Brook, Whiteman et al., 1990; Conger et al., 1994; D'Amico & Fromme, 1997; Duncan et al., 1996; Needle et al., 1986; Vakalahi et al., 2000). Demographic similarity such as same-sex and similar age further increases behavioural resemblance (McGue et al., 1996a; Rowe & Gulley, 1992). Rowe and Gulley (1992) tested two 'sibling effect' models, one referring to '*partners in crime*' and the other to '*siblings as key pathogens*'. They found support for the former for substance use (see also Slomkowski et al., 2005 for smoking) and for both in relation to delinquency (see also Slomkowski et al., 2001). To replicate these findings from US research the following specific working hypotheses were formulated in accordance with the Research Questions 4 and 5:

4. Older and younger siblings' drinking behaviour and attitudes are related.
   a) The siblings resemble each other in their alcohol use.
   b) Older siblings' supply of alcohol use ('advocacy') is related to increased alcohol consumption by younger siblings.
   c) Older siblings' attitudes toward substance use are related to younger siblings' attitudes.

For each working hypothesis, gender or age similarity should increase resemblance among siblings (McGue et al., 1996a; Rowe & Gulley, 1992).

5. Sibling relationship quality conditions sibling resemblance in alcohol use.
   a) Sibling warmth and having mutual friends increase similarity in alcohol use ('partners in crime'; Rowe & Gulley, 1992)
   b) Sibling conflict increases similarity in alcohol use ('siblings as key pathogens'; Rowe & Gulley, 1992).

6.4.1. Method of Analysis

The analysis involves only the self-reported measures by each sibling for the same reasons as discussed in Chapter 4. Alcohol advocacy is defined according to Brook, Whiteman et al. (1990) as supplying the substance under concern (i.e. supply of alcohol). It involves making alcohol available to the sibling by actually offering it. To investigate the first set of hypotheses, *Question 4*, Pearson (r) correlation coefficients were computed between:

- older and younger siblings' drinking frequency over last 12 months
- older and younger siblings' attitude (i.e. disapproval of substance use).

Several variables showed non-normal distribution: OS supply of alcohol and YS alcohol use measures. Therefore the association between older siblings' supply of alcohol and younger siblings' drinking frequency and lifetime frequency of drunkenness was examined with Spearman's rho (R) correlation coefficients.

Moderator effects for each association were investigated by comparing correlation coefficients for groups defined by similarity of gender or age (McGue et al., 1996a; Rowe & Gulley, 1992). This is an alternative approach for exploring moderator effects, particularly with smaller samples (Bryman & Cramer, 1997; p. 251). Age similarity is defined as being within two years, employing the age in years measure.

Regarding *Question 5*, the conditional influence of sibling relationship quality on similarity in frequency of alcohol use over the past 12 months was explored with hierarchical regression analyses. This approach followed Rowe and Gulley (1992) and included the measures of sibling warmth, sibling conflict, and having mutual friends. The following equation was applied:

$$YSALC = b_1\ YSAGE + b_2\ REL + b_3\ OSALC + b_4\ REL*OSALC + b_0.$$

Only older siblings' reports on their alcohol use (OSALC) and sibling relationship (REL) were used as predictors of younger siblings' drinking (YSALC), avoiding the method confound of having information from younger siblings on both sides of the regression equation. Age of younger sibling (YSAGE) was included as a predictor because it was substantially associated with the adolescents' drinking behaviour (see section 6.3.3). Analyses were computed without (Step 1) and with the interaction term (REL*OSALC) (Step 2). The variables used in the interaction term were centred (computed as deviation from the mean) to reduce multi-collinearity between predictor variables and their interaction term (see Rowe & Gulley, 1992).

The social processes that seem to facilitate behavioural resemblance among siblings ('sibling effects models') were found for both brother and sister pairs (Rowe & Gulley, 1992; Slomkowski et al., 2001). Therefore, the regression analyses were computed separately for same- and opposite-sex siblings to maintain an acceptable sample size for the analysis groups. Further investigation of these processes for sisters and brothers was not possible due to the then insufficient sample size for regression models. Altogether six hierarchical regression models were computed (two sibling gender similarity groups times three relationship measures).

6.4.2. Results Question 4: Sibling Similarity in Alcohol Use and Attitudes and Older Siblings' Advocacy

Sibling similarity in alcohol use

A significant, though small, correlation of $r(114)=.23$ ($p<.05$) between older and younger siblings' drinking frequency over the past 12 months was found. Frequently drinking older siblings had younger sisters and brothers who also consumed alcohol more often. No moderator effect of gender similarity was found. Similar strength of association emerged for same-sex

pairs (r(54)=.22, n.s.) and opposite-sex pairs (r(60)=.25, p<.10), which lacked significance due to the reduced sample size. Further investigation of sibling gender combination demonstrated that the same-sex sibling resemblance was based on brothers only (r(27)=.43, p<.05); sisters' drinking was unrelated (r(28)=.03, n.s.). There was no difference for the two mixed-sex sibling groups. Age similarity did not moderate the relationship either. Dissimilar age siblings (more than two years apart) showed a similar association (r(81)=.26, p<.05) as similar age siblings (r(33)=.28, n.s.).

Sibling similarity in attitude towards substance use

Older and younger siblings' attitude was positively and significantly related (r(116)=.28, p<.01). Gender similarity did not moderate the association (same-sex: r(55)=.29, p<.05 vs. opposite-sex: r(61)=.22, p<.10). In contrast, age similarity had a moderator effect on the relationship, with dissimilar age siblings being more similar (r(83)=.37, p<.01) than similar age pairs (r(33)=.14, n.s.).

Older sibling's alcohol supply and younger sibling's alcohol use

In the overall sample of younger siblings the two alcohol indicators (drinking frequency over the last 12 months and lifetime frequency of intoxication) were strongly and positively related (r(115)=.51, p<.001). Older siblings' supply was significantly associated with younger siblings' drinking in terms of consuming alcohol more frequently over the last 12 months (R(114)=.22, p<.05) and experiencing more frequent lifetime intoxication (R(115)=.26, p<.01). However, the relationship was small in magnitude. Sibling gender similarity moderated the association between supply and younger sibling's alcohol use[1]. Among same-sex siblings (drinking frequency: R(54)=.30, p<.05, intoxication: R(54)=.41, p<.01) much higher correlation coefficients were achieved than among opposite-sex pairs (drinking frequency: R(60)=.12, n.s.; intoxication: R(61)=.14, n.s.). Age similarity also moderated the relationship, particularly for younger siblings' intoxication (similar age: R(32)=.44, p<.05 vs. dissimilar age: R(83)=.14, n.s.) (drinking frequency: similar age: R(32)=.33, p<.10 vs. dissimilar age: R(82)=.15, n.s.).

[1] Correlation between two alcohol indicators of younger sibling: same-sex: r(55)=.42 (p<.01); opposite sex: r(60)=.61 (p<.001)

Summary

Older and younger siblings drinking and attitudes were interrelated. Neither age nor gender similarity moderated siblings' resemblance in alcohol use. Such behavioural resemblance was found for brother but not sister pairs. Dissimilar in age siblings resembled each other more in their attitude towards substance use. Older siblings' supply of alcohol was associated with younger siblings' drinking frequency and experience of intoxication, with the relationship being stronger for same-sex and similar age siblings. The last part of the analysis focuses on sibling interaction as a facilitative environment for developing similar alcohol use.

6.4.3. Results Question 5: Sibling Relationship as a Moderator for Similarity in Alcohol Use

The analyses focus on the groups of same- and opposite-sex siblings based on previous research (Rowe & Gulley, 1992). First, Pearson correlation coefficients were computed between relationship quality and younger siblings' drinking frequency over the past 12 months, shown in Table 6.8. Sibling warmth and conflict were unrelated suggesting that siblings may match or differ regarding degrees of closeness and conflict. None of the three sibling measures (warmth, conflict, mutual friends) were significantly associated with younger siblings' alcohol use in either group. If statistical association is a prerequisite for causation, these variables lack direct causal influence but may condition the behavioural resemblance of siblings, thus act as moderators (Baron & Kenny, 1986). This moderator function of sibling relationship measures was explored in hierarchical regression models.

Table 6.8. Pearson correlation (n) between relationship quality and younger siblings (YS) drinking by gender similarity

	YS frequency	**Warmth**	**Conflict**	**Mutual friends**
YS frequency	1.00	.20 (60)	.17 (60)	.13 (59)
Warmth	.07 (55)	1.00	-.08 (61)	**.50**** (60)
Conflict	-.00 (55)	-.22 (55)	1.00	-.02 (60)
Mutual friends	.16 (55)	**.37**** (55)	.05 (55)	1.00

Note: same-sex pairs below diagonal, opposite-sex pairs above diagonal; ** p<.01; *** p<.001

Findings from the hierarchical regression models are summarised in Table 6.9 (see following page). The strongest predictor in all analyses was younger siblings' age. In almost all analyses, neither older siblings' drinking nor relationship quality significantly predicted outcome. Among same-sex siblings a marginal influence of having mutual friends emerged, which may be more substantial in a bigger sample. No interaction terms contributed significantly to the models for opposite-sex siblings. For same-sex siblings, only one interaction term (sibling conflict by older siblings drinking) explained a significant proportion of outcome variance, thus conditioning sibling similarity. The conditional effect was in the opposite direction than expected: greater sibling conflict reduced sibling resemblance for alcohol use. This may be a chance finding considering that only one out of six interactions achieved significance.

6.4.4. Overview: Older Siblings' Influence on Younger Siblings' Alcohol Use

Overall, the present findings do not clearly confirm results from previous studies on sibling influence (e.g. Ary et al., 1993; McGue et al., 1996a; Rowe & Gulley, 1992). Older and younger siblings' alcohol use was significantly and positively associated. However, the expected moderator effects of age and gender similarity as reported in other studies (McGue et al., 1996a; Rowe & Gulley, 1992) were not confirmed. Moreover, the overall sibling resemblance in alcohol use appeared to result from the substantial association between brothers' drinking behaviour. Alcohol use among older and younger sisters was independent from each other. Sibling similarity in attitudes was not moderated by gender similarity, but siblings of dissimilar age showed greater resemblance than those of similar age. Older siblings' supply of alcohol was associated with younger siblings' frequency of alcohol use and their experience of drunkenness. Same-sex and similar age siblings showed a stronger relationship than their counterparts, particularly for younger siblings' drunkenness. Regarding the 'sibling effect models', no supportive findings emerged. In contrast to the prediction, a conflict-free sibling relationship increased resemblance among same-sex siblings, lending indirect support to the 'partners in crime model' (see also Rowe & Gulley, 1992). However, this finding may simply have emerged by chance.

Table 6.9. Hierarchical regression models predicting younger siblings' drinking from older siblings' (OS) drinking, sibling relationship, and interaction term

	Same-sex siblings			**Opposite-sex siblings**		
	Beta	**R^2 (total)**	**R^2 (change)**	**Beta**	**R^2 (total)**	**R^2 (change)**
Model 1: Conflict						
1. Age	.41**			.44**		
OS drinking	.03			.08		
Conflict	-.03	.18*		.10	.24**	
2. Interaction term	**-.28***	**.25*[a]**	**.07***	.06	.25[b]	.01
Model 2: Warmth						
1. Age	.41**			.41**		
OS drinking	.02			.11		
Warmth	.03	.18*		.13	.25**	
2. Interaction term	-.15	.20[c]	.02	.01	.25[d]	.00
Model 3: Mutual Friends						
1. Age	.39**			.40**		
OS drinking	.11			.11		
Mutual friends	.25[+]	.24**		.07	.22**	
2. Interaction term	-.01	.24[e]	.00	.09	.23[f]	.01

[a] For full model, F(4, 49)=4.18, p=.005
[b] For full model, F(4, 55)=4.50, p=.003
[c] For full model, F(4, 49)=3.10, p=.024
[d] For full model, F(4, 55)=4.61, p=.003
[e] For full model, F(4, 49)=3.86, p=.008
[f] For full model, F(4, 54)=3.94, p=.007
[+] p<.10; * p<.05; **p<.01; Beta: standardised

6.5. Discussion

The aim of this chapter was to investigate parental and sibling influence on adolescent alcohol use in relation to social learning principles. Aspects of the alcohol-specific environment included family members' actual drinking behaviour, attitudes and norms and siblings' supply of alcohol. A special focus was taken on the moderating effect of gender in the transmission of alcohol use from parent to child and within pairs of siblings. In addition, sibling relationship quality was examined as a further conditioning factor for sibling resemblance in alcohol use. This final section summarises and discusses the main findings. Here, particular attention is paid

to the findings on sibling effects due to their scarcity in British research. Furthermore, the complex gender effects also receive attention, although this issue is largely revisited in Chapter 8. Limitations of this specific approach are considered.

6.5.1. Parental and Sibling Effects on Adolescent Alcohol Use

Results stress foremost the importance of examining gender effects on both parent-child transmission of alcohol use and sibling influences on drinking. In relation to parental effects, the present study partly confirmed findings from other studies on parental modelling of alcohol use. Gender symmetry (e.g. Wickerama et al., 1999; Yu & Perrin, 1997) in the parent-child transmission was not confirmed. Female drinking was not associated with parental alcohol use and attitudinal measures and only predicted by age. Present findings appear consistent with studies reporting greater male vulnerability because significant relationships were only found between parents and their male offspring (Cooper et al., 1995, Weitzman & Wechsler, 2000). Males' alcohol consumption was moderately associated with and predicted from parental drinking, and for older males also from parental norms, in addition to age-related increases. This indicates the increasing significance of parental guidance in form of setting behavioural norms particularly for the age group when drinking is more likely to occur outside direct parental supervision (see Chapter 1). For younger children, who tend to drink more at home, frequently drinking parents may actually provide them with a) more occasions where they are allowed a drink and b) increased access to alcohol in the house, than parents who consume alcohol less often (Settertobulte, Bruun Jensen, & Hurrelmann, 2001).

Adolescents' attitudes were associated with mothers' self-reported and perceived attitudes but only with adolescents' perceptions of fathers' attitudes. Mothers may be more available to their children and communicate their attitudes more to them, possibly even more clearly, thus influencing their children's own attitudes. Fathers, in contrast, may communicate their attitudes less often or less clearly so that children either mould their attitude on how they think what would be acceptable behaviours in his view. A British study on developing masculinity among male adolescents (Phoenix & Frosh, 2002) showed that young people considered their fathers as more fun, as more like themselves, youth-like; mothers were seen as more serious, duty-bound. Such a perception of fathers may extend to drinking behaviour as regards viewing what they believe are his attitudes in line with adolescents' own attitudes to substance use.

In regard to the influence of gender similarity/dissimilarity of sibling pairs on parental norm-setting and sanctions in relation to drinking, no interaction effects between sibling gender similarity and sibling status emerged. This suggests invariance for these parental measures across same- and opposite-sex sibling pairs. No influence of sex of sibling has been found in relation to monitoring (Crouter et al., 1995), a construct that also has been linked with adolescent alcohol use (e.g. Aseltine, 1995). However, the work by McHale and Crouter (1996) can challenge such findings. They demonstrated the impact of siblings' gender in relation to fathers' involvement with a child. Possibly the effect of gender is more exacerbated by the specific gender composition of the sibling dyad than by sibling gender similarity. The latter may be a rather rough indicator, collapsing gender norms. Yet, younger siblings experience and report stricter alcohol norms set by parents and perceived more sanctions for their alcohol use, possibly reflecting age-related societal norms.

In relation to sibling influence, previous findings were only partly confirmed by the present study. A significant relationship between older and younger siblings' frequency of alcohol use over the last 12 months was found, with its magnitude being similar to reports from other studies (Conger & Rueter, 1994; Conger et al., 1994; McGue et al., 1996a; Monahan et al., 1993; Rowe & Gulley, 1992). For sibling similarity in alcohol use, gender emerged again as a crucial factor. In contrast to previous reports (McGue et al., 1996a; Rowe & Gulley, 1992), gender and age similarity did not increase resemblance. Similarity in alcohol use was of equal magnitude between same- and opposite-sex siblings, similar to findings on siblings' sexual activity (Haurin & Mott, 1990). Unexpectedly, brothers showed the highest resemblance, with sisters' drinking being completely independent from one another which contrasts with several reports (Maes et al., 1999; Rowe & Gulley, 1992). It is, however, consistent with Anderson's (1999) finding of greater similarity of brothers, suggesting that brothers in particular share some experience contributing to their behavioural resemblance. Considering the salience of reciprocity among siblings in creating a shared environment for one another (Reiss et al., 2000), Anderson suggested that reciprocity may be even more critical for male siblings. Then higher reciprocity should result in higher similarity. According to Reiss et al. (2000), opposite-sex pairs would show less reciprocity, thus being more susceptible to nonshared effects.

Similarity in attitudes towards substance use was of small magnitude in the present study and not moderated by gender similarity. Age dissimilarity, however, had an unexpected effect of making siblings resemble each other much more in their attitude. A much older sibling may serve as a better model for acceptable behaviour due to their probably greater experience regarding substance use based on age-related increases (Fillmore et al., 1988; Plant & Plant, 1992; Windle & Barnes, 1988). Wider, but not narrower, age spacing facilitates sibling relations in terms of increasing sibling admiration (Buhrmester & Furman, 1990). Thus, greater age dissimilarity may actually foster adopting attitudes similar to one's older sibling. Moreover, wider age spacing provides the younger sibling with more time to observe and the older one with more time to demonstrate or communicate (Rodgers et al., 1992). This effect of age dissimilarity does not contradict the lack of influence of age similarity on siblings' resemblance for drinking. Attitudes about alcohol use reflect only one factor among many affecting actual drinking behaviour. Younger siblings' alcohol use was strongly influenced by age. Thus, in the present sample the actual drinking behaviour of the younger adolescents seemed to follow more standards and expectations according to their age than the model provided by their siblings (brothers may be an exception here).

Older siblings' advocacy of alcohol use in terms of actually offering alcohol to their younger brother or sister was significantly related to both younger siblings' drinking frequency and experiences of drunkenness. This finding confirms previous reports on drug use (Brook, Whiteman et al., 1990). The relationship between advocacy and younger siblings' alcohol consumption, however, was stronger and only significant for same-sex in contrast to opposite-sex siblings. This emerged particularly for younger adolescents' experience of intoxication. The present findings did not only confirm an effect of advocacy for alcohol among same-sex siblings, but is also indicative of this advocacy occurring among brother and sister pairs. Caution should be applied to causal interpretations due to the study's cross-sectional design. Older siblings' supply of alcohol may support and encourage younger siblings' (excessive) drinking. Alternatively, an older sibling may feel encouraged to provide alcohol for a younger brother or sister they know is familiar with the psychoactive substance. As another possibility, older siblings may respond to an explicit request by younger siblings.

The second part on sibling effects focused on the underlying social processes for sibling similarity in alcohol use in terms of sibling interaction. Consistent with other research (Furman & Buhrmester, 1985; Rowe & Gulley, 1992) sibling warmth and conflict were unrelated. This indicates that siblings may match or differ in degrees of conflict and closeness, thus reflecting independent dimensions of sibling relations. Rowe and Gulley's findings (1992) of the interaction effects between sibling substance use and sibling warmth, conflict or having mutual friends could not be confirmed, thus the 'partners in crime' (Reiss & Farrington, 1991) and 'siblings as key pathogens' (Patterson, 1984) model were unsupported. This result is consistent with Stormshak et al. (2004; regarding sibling deviance) but contrasts with reports by Slomkowski et al. (2001; 2004) on sibling similarity in deviance and smoking behaviour. Moreover, the only significant interaction effect could challenge Patterson's (1984) model of sibling effects among preadolescents. Sibling conflict was related to less behavioural resemblance, similar to Rowe and Gulley's (1992) finding of a conditional effect regarding brothers' substance use and sibling conflict.

Originally, Patterson and colleagues (e.g. Bank et al., 1996) argued that siblings engage in coercive exchanges, thereby functioning as amplifiers and trainers for aggressive behaviour. These coercive behavioural sequences between siblings are followed by reinforcing contingencies whereby one child is rewarded with either a material or psychological gain (e.g. sibling leaves situation). Frequent mutual aggressive cycles draw both siblings into deviance. The measure of sibling conflict used here, as by Rowe and Gulley (1992), comprises quarrelling and fighting among siblings and approaches the concept of coercive interaction.

Sibling conflict was not correlated with younger siblings' drinking frequency among same-sex or opposite-sex siblings (see Table 6.8). This may indicate the more conventional rather than deviant nature of occasional alcohol consumption among young people within this specific sample (see Chapter 5) as well as within the British cultural context in general (Sharp & Lowe, 1989). Findings may differ when more deviant aspects of youthful drinking are considered (e.g. drunkenness). Stevenson and Lee (2001) reported an association between heavy drinking and poor sibling relationship which was accounted for by their association with disruptive behaviour among siblings. The finding from the present study supports more the hypothesis of a conflict-free relationship allowing for sibling influence, thus rather supporting the 'partners in crime'

model. Patterson's research focused primarily on children, different mechanisms may operate during adolescence (Slomkowski et al., 1997).

Overall, many of the proposed associations were found. These associations lend more support to some of the diverse, previously found relationships than others. The results strengthen the importance of parental alcohol use norms for adolescent alcohol use, particularly for older (male) adolescents. They further highlight the role of older siblings in the social learning process of adolescent alcohol use, although the facilitating contribution of the sibling relationship could not be fully examined (see also limitations). Yet in regard to gender patterns among parent-child dyads and siblings, these findings rather contribute to the existing diversity of patterns than narrow them down. This issue of gender and alcohol use is returned to in Chapter 8 through a closer investigation of the cultural context of male and female drinking. The following, section discusses several limitations of the findings presented in this chapter. This section may offer some explanation why certain associations emerged or failed to be found.

6.5.2. Limitations

It is important to outline several limitations specific to the analyses presented in this chapter, with larger issues being attended to in Chapter 8. These include as a major limiting factor the small sample size, particularly in analyses examining gender subgroups, by reducing statistical power. It resulted in restricted reliability of correlation coefficients, which need to be treated with caution and require replication. Another cautionary note relates to parent-child resemblance in alcohol use which as some behaviour geneticists would argue is due to shared genes and not socialisation (e.g. McGue et al., 1996a; Rowe, 1994). Because the sample consists of intact families, genetic influences cannot with certainty be excluded and the similarity may not be entirely due to psychosocial factors.

Thirdly, there may be concerns about the sensitivity of the alcohol use measures, particularly whether they were sufficiently developmentally sensitive, considering the wide age span of adolescents covered (11 to 19 years) and age-related increases in consumption. In support to the approach within this thesis, frequency measures of alcohol use are commonly employed in developmental studies covering wide age groups (Conger & Rueter, 1996; Rowe & Gulley,

1992). However, there are no guidelines what type of measure is most suitable for what age group.

A fourth concern relates to the type of analysis applied to parental effects on older and younger siblings' alcohol use. The separate regression models for gender and sibling status used here did not directly test whether parental drinking affects each sibling similarly. For example, repeated measures ANOVAs would have been a more appropriate alternative but the small sample size did not allow for comparison of sibling gender combination group or interaction effects. This would have required reducing a continuous variable (parental alcohol use) into a categorical variable (e.g. high/low) with no guidelines for where to split (e.g.. Is daily drinking a greater risk factor than the twice a week 'binge'?).

Finally, since no support for the sibling effects models as shown in Rowe and Gulley (1992) and Slomkowski et al. (2001) was demonstrated, questions emerge whether treating brothers and sisters as one group, same-sex siblings, was appropriate. This may be particularly critical because only brothers', but not sisters', drinking was associated. Despite significant similarity for brothers and sisters reported in the two previous studies, they were examined in separate analyses based on larger sample sizes, which was not permitted here. These authors also reported, beside certain similarities in processes, gender-specific findings such as low sibling conflict increasing brothers' substance use resemblance (Rowe & Gulley, 1992). Such an effect was demonstrated here for same-sex siblings and alcohol use. In Slomkowski et al. (2001) sibling warmth conditioned similarity in delinquency among brothers only. A further reason for not confirming the proposed models may be conceptual difference in outcomes measured: deviant activities such as substance use and delinquency in the US studies and occasional normative alcohol use among Scottish youngsters.

6.5.3. Conclusion

Overall, there is evidence of parental and sibling influence on adolescent alcohol use within a social learning approach. Parent and child gender and sibling gender combination condition these associations. The use of collapsed gender combination groups due to sample size (i.e. same- versus opposite-sex siblings) appeared to have disguised certain gender-related processes. Still, these results can be considered reliable because individual family member's self-reports

were used, with results not simply being based on a single respondent. Parents' actual drinking behaviour and the norms they set for their different children were important predictors for their sons' alcohol consumption. Sibling influence in the present sample was not as strong as suggested by others and possibly holds only for certain subgroups of siblings (e.g. brothers). Family similarity in alcohol use seems most prominent among male family members. A further important factor, certainly for same-sex siblings, was older siblings' actual provision of alcohol (advocacy of use) for their younger sibling. Thus, the investigation of the alcohol-specific family environment inclusive of siblings is worthwhile and deserves further research.

Still, social learning of alcohol use reflects just one perspective, which considers only direct effects of the alcohol-specific environment provided by parents and siblings. Research has shown that parental alcohol use effects adolescent drinking behaviour rather indirectly via parent-child relationships and family climate (Conger & Rueter, 1996; Velleman & Orford, 1993a, b, 1999). Furthermore, aspects of the non-alcohol-specific environment including the wider family system (e.g. marital relations) have also been related to adolescent alcohol use as has been shown in Chapter 3. In the following chapter, the effect of parental alcohol use and family relationships are explored, which broaden the focus of the analysis beyond dyads of parent and child or sibling pairs to larger family units and influences of more distant family subsystems.

CHAPTER 7
MARITAL RELATIONSHIPS, PARENTING AND SIBLINGS' ALCOHOL USE: A WITHIN-FAMILY PERSPECTIVE

7.1. Introduction

While the previous chapter focused on the alcohol-specific family factors and adolescent alcohol use, this Chapter will extend on these findings by examining the non-alcohol-specific family environment. The objective of this chapter is to explore siblings' alcohol use within the context of interrelated family subsystems which has been stressed as crucial for investigating individual adjustment (Minuchin, 1985). Chapter 3 reviewed the relevant research evidence, concluding in the theoretical model in Figure 3.2 which indicates relations between the different family subsystems and adolescent alcohol use. The present chapter briefly summarises the evidence according to this model and proposes research questions. This is followed by the presentation of the empirical analyses and results in relation to the proposed relations. Finally, findings are summarised and discussed.

7.2. Summary of Evidence and Research Questions

It has already been stressed in Chapters 1 and 3 that the parent-child relationship has received the greatest attention in terms of family socialisation factors affecting adolescent alcohol use (e.g. Foxcroft & Lowe, 1991; Hawkins et al., 1992). These chapters have also emphasised to consider parent-child relations within the wider family context based on such perspectives as family systems, stresses and strains, and differential parenting. For this part of the thesis' empirical analyses focus is on the relations among parental alcohol use, the marital, parent-child, and sibling subsystem and siblings' alcohol use. The proposed causal model (Chapter 3) is shown in Figure 7.1. The role of sibling relations has been examined in Chapter 6 and showed no direct influence on adolescent alcohol use; though there was some indication for a moderating influence. Consequently, sibling relations are only considered in relation to the

parent-child relationship here. The following paragraphs summarise the empirical evidence in support of this model, concluding in three guiding research questions.

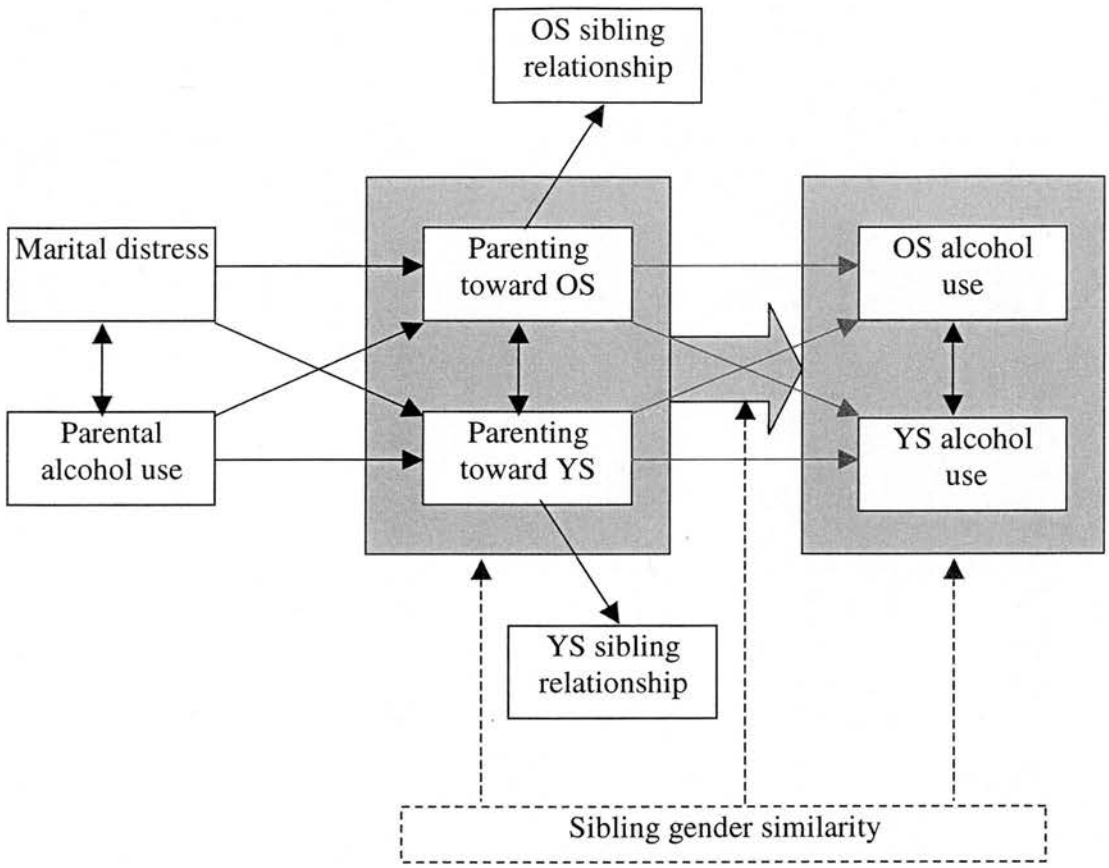


Figure 7.1. A theoretical model for predicting sibling alcohol use

Note: The model is examined separately for mother and father.

Research has shown that *marital distress* and *parental alcohol problems* disrupt effective child-rearing practices and increase the likelihood of hostile, coercive and inconsistent parent-child interactions (Conger & Rueter, 1996; Cummings & Davies, 2002; Davies & Cummings, 1994; Hetherington et al., 1999). Thus, in families with high parental alcohol consumption and/or marital distress levels of warmth/support and monitoring are decreased and those of conflictual and negative interaction with each child are increased (Henderson et al., 1996). Yet, others reported that siblings' parent-child relations are not equally affected by marital distress (e.g. Jenkins et al., 2003). In addition, parental drinking and marital distress are themselves

interrelated, with causal influences operating in either direction (e.g. Roberts & Leonard, 1997). Another source of influence on the parent-child relationship is *sibling gender composition* which tends to moderate certain aspects of mothers and fathers' interaction with their children (e.g. Crouter et al., 1995; McHale & Crouter, 1996; Tucker et al., 2003).

Parent-child relationship quality in turn affects both the *siblings' relationship* with one another and individual sibling's adjustment. The quality of parent-child relations appears to be related to the quality of the sibling relationship. Either sibling exposed to warm parenting will show a warm sibling relationship, with a corresponding association for conflict in parent-child and sibling relations (e.g. Brody et al., 1992; Brody & Stoneman, 1996; Rinaldi & Howe, 2003; Stocker & McHale, 1992). These associations generally indicate congruence in the quality of the marital, parent-child, and sibling relations (e.g. Furman, 1995; Reiss et al., 2000).

In relation to *adolescent alcohol use*, only the parent-child relationship will be considered as a direct antecedent. Parental monitoring and warmth have been shown to promote less alcohol use as well as general good adjustment (e.g. Cottrell et al., 2003; Foxcroft, & Lowe, 1991, 1997; Kerr & Stattin, 2000; Shucksmith et al., 1997; Wood et al., 2004). Hostile and coercive parent-child interaction and exposure to marital discord increase the risk of greater alcohol use and behaviour problems (e.g. Conger & Conger, 1994; Conger & Rueter, 1996; Kerr & Stattin, 2000; Mekos et al., 1996). Thereby, adolescents' perceptions of the parent-child relationship were found to mediate, at least partially, the effect of parenting on child adjustment (Harold et al., 1997; Neiderhiser et al., 1998).

From a *differential parenting perspective*, research has demonstrated that parenting directed to each sibling is the best predictor for each sibling's alcohol use (child-specific effects). Few studies also discovered a paradoxical effect that the target child faired better when his or her sibling was the recipient of harsh parental behaviour ('sibling barricade') (Feinberg et al., 2000; Reiss et al, 1995). These associations according to the 'covariance model' are emphasised with purple arrows in Figure 7.1. Studies employing the 'difference score model' (depicted with the blue fields and arrow) also converged in the finding that differences in parenting are related to differences in siblings' adjustment (e.g. Feinberg & Hetherington, 2001; Mekos et al., 1996). Differential parent-child conflict, differential paternal warmth, and differential exposure to

marital discord were associated with sibling differences in substance use, problem behaviour, and delinquency concurrently and longitudinally (Conger & Conger, 1994; Mekos et al., 1996; Monahan et al., 1993). The adolescent receiving the more favourable parental treatment (more warmth or monitoring, less negativity or exposure to marital discord) relative to his/her sibling exhibited the better adjustment relative to this sibling (Conger & Conger, 1994; Henderson et al., 1996; Mekos et al., 1996; Monahan et al., 1993; Tejerina-Allen et al., 1994). Although, similar associations are expected for sibling alcohol use, it cannot yet be specified which parent-child measures in terms of differential parenting is salient for siblings' alcohol use due to the lack of research in this area.

Furthermore, sibling gender similarity has been included as a moderating influence for several reasons (see also Chapter 2 and 3). First, siblings' characteristics have been shown to influence parents' differential treatment (Henderson et al., 1996; Steinberg & Morris, 2001), for example, in form of sibling gender combination (Crouter et al, 1993; McHale & Crouter, 1996). Second, findings from the NEAD project are restricted to same-sex siblings, with other studies not attending to sibling gender despite gender's significance for family interaction (Crouter et al., 1993; Maccoby, 1990). Therefore, associations between differential parenting and differential alcohol use may vary between families with same-sex and opposite-sex siblings.

In summary, siblings' alcohol use and their relationship with one another is predicted by the quality of the marital relationship, parental alcohol use, and parenting quality. Of particular interest in the link between parent-child relationship and adolescent alcohol use are parental monitoring, warmth/support, and conflict/negativity as well as exposure to marital discord. Mothers and fathers are considered separately based on findings suggesting differences in their salience for sibling relationship quality and adolescent adjustment (Brody et al., 1992; Brook, Brook et al., 1990; Feinberg & Hetherington, 2001). The theoretical model (Figure 7.1) is based on processes investigated by several researchers of the NEAD project (Henderson et al., 1996; Hetherington et al., 1999; Mekos et al., 1996; Reiss et al., 1995). It addresses the following gaps in research (see Chapter 3 for details): lack of British research on family factors regarding adolescent alcohol use, particularly comprehensive approaches to the family context, and missing evidence in relation to differential parenting and adolescent alcohol use.

The model's structure and components provide three main research questions. The first question explores the relation between the marital subsystem/parental alcohol use and the parent-child subsystem. The second question considers the parent-child subsystem in relation to the sibling subsystem and adolescent adjustment. Finally, the third research question relates to differential parenting and its association with sibling differences in alcohol use based on the difference score model. Additionally, sibling gender similarity is considered as a moderating factor shown by the dashed arrows in Figure 7.1. The following research questions guide the empirical analysis in this chapter:

1. **Do marital distress, parental alcohol use and sibling gender combination function as determinants of parenting quality?**

2. **Is the quality of the parent-child relationship associated with the quality of the sibling relationship and adolescent alcohol use?**

3. **Do differences in parental treatment predict differential sibling alcohol use? Does sibling gender similarity determine differential parenting and moderate the association between differential parenting and differences in siblings' alcohol use?**

Overall, the proposed causal model (Figure 7.1) is very complex and could not be fully tested with the limited sample size. Therefore, analyses were performed in a stepwise procedure on sub-portions of the larger model: a) the marital relationship, parental alcohol use, and sibling gender similarity in relation to parent-child subsystems; and b) the parent-child subsystem in relation to siblings' alcohol use as well as sibling relationship quality. A third step in the investigation focuses on the relationship between differences in rearing environment in relation to differential sibling alcohol use, indicated by the blue fields in Figure 7.1. Thus, each of the three questions is examined separately in individual sections; each providing the methodological approach and results according to the different steps of the overall model. In the final section of this chapter, findings are summarised and discussed in relation to the overall model of relations between family subsystems and adolescent alcohol use. Here already, some specific limitations of the applied approach are acknowledged.

7.3. Question 1: Marital Quality, Parental Alcohol Use, and Sibling Gender Combination as Predictors of Parent-Child Relations

Marital distress and parental alcohol abuse have been shown to be powerful influences in disrupting effective parenting behaviour (e.g. Conger et al., 1994; Hetherington et al., 1999). There is also evidence for an association between marital distress and parental drinking behaviour (e.g. Roberts & Leonard, 1997). Furthermore, the gender combination of sibling pairs appeared to impact on how parents treat their children (McHale & Crouter, 1996). Figure 7.2 represents these relations by bold-printed, red arrows.

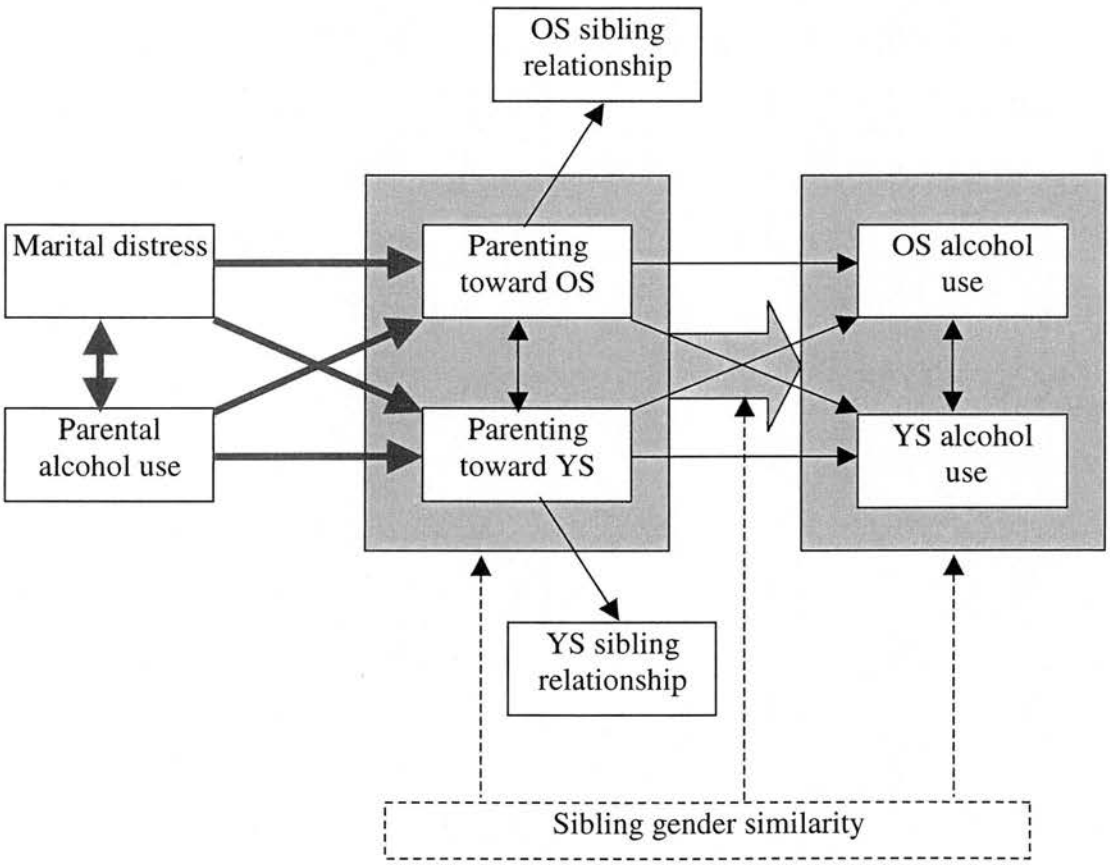


Figure 7.2. A theoretical model for predicting sibling alcohol use: Focus Question 1

Note: The model is examined separately for mother and father.

The following hypotheses are examined in this section:

1. Marital distress is associated with increased parental alcohol use.
2. Marital distress as well as parental drinking behaviour are related to lower levels of monitoring and warmth but increased negativity in either sibling's parent-child relationships.
3. Differences in older and younger siblings' experiences in the relationship to their parents are due to sibling gender similarity of the dyad.

7.3.1. Method of Analysis

The association between marital relationship and parental alcohol use were investigated with Pearson correlations, except for the violence subscale (CTS, Strauss, 1979) where cross-tables and Fisher's Exact Tests (expected cell counts of less than five) were employed. Due to little variation in the raw data, the violence subscale scores were dichotomised (dummy coded: '1=used violence'). To investigate its relationship with parental alcohol use in 2x2 tables, mother's and father's drinking frequency and problem drinking were also dichotomised:

- Drinking frequency: three or more times a week versus twice a week or less
- Problem drinking (median-split): mother scores 3-4/father scores 3-5 (no problem drinking) versus mother score 5-9/father score 6-11 (problem drinking).

Regression analyses were conducted to predict parent-child relations from marital relationship and parental alcohol use after exploring their correlational pattern. The following measures were selected for the analysis.

- Parental alcohol use: drinking frequency, problem drinking
- Marital relationship: marital quality, Conflict Tactics Scales (Strauss, 1979): subscales reasoning, verbal aggression, violence
- Parent-child relationship: monitoring, warmth, negativity

Only mothers' and fathers' self-reports were used. Children's perceptions of parenting measures were excluded for two reasons. First, perceptions may depend more on intrapersonal factors such as dispositions how experiences are represented (see Reiss et al., 2000 for a discussion). Second, children are less likely to have firsthand knowledge of marital problems since they are not part of this subsystem. Despite the suggestion by some authors (Melby et al., 1993; Schwarz et al., 1985) to aggregate reports across different respondents to increase the

reliability of measures, mother and father report on marital quality were not averaged (see Chapter 4). With the significance of individual family member's perception in focus, separate analyses for mother and father were computed.

To investigate the influence of sibling gender similarity on parent reported parent-child relationship, repeated measures ANOVAs were computed with sibling status (older versus younger sibling) as the repeated measure. Beside interest in group differences of sibling gender similarity, focus was on similarities/differences of older and younger siblings' experiences and the interaction between sibling status and gender similarity. Parent-child measures additionally included the composite 'exposure to marital discord' (EMD). All models were computed separately for mother and father (except for EMD). The limited sample size did not permit the inclusion of both parents in the same model.

7.3.2. Results: Influences on Parent-Child Relationships

Association of parental alcohol use and marital relationship

First, the association between marital relationship and parental alcohol use was explored in correlational analysis. Pearson correlation coefficients are presented in Table 7.1. Out of 16 coefficients, only one relationship reached significance: father's report of verbal aggression was positively associated with maternal problem drinking ($r(115)=.21$, $p<.05$). Cross-tabulation of dichotomised violence and parental drinking measures separately for mother and father resulted in nonsignificant associations (by df=1) for drinking frequency (Fisher's Exact Test: Mother p=.482; Father p=1.000) and problem drinking (Fisher's Exact Test: Mother p=.491; Father p=.246). Overall, parental alcohol use was not associated with the various measures of the marital relationship in this study. After establishing no link between marital relationship and parental drinking, thus not confirming the first hypothesis, their effect as stressors for parent-child relations was explored.

The relationship of marital distress and parental drinking with parent-child relationship

Before regression models predicting parent-child relationship quality from marital relationship and parental alcohol consumption were computed, the pattern of association among individual measures was examined in correlational analyses.

Table 7.1. Correlation between measures of marital and parent-child relationship and parental alcohol use

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. ctr	1.00	.04	.08	-.13	-.07	.02	-.04	.11	-.01	-.08	.11	.04	.06	.10
2. ctva	-.07	1.00	.39***	.31**	.01	-.08	.21*	.17^{+}	-.03	.02	-.02	.02	.32**	.28**
3. ctvi	.10	.22*	1.00	.08	-.07	-.05	-.02	.00	-.09	-.08	-.01	-.01	.37***	.25**
4. marqua	.12	.29**	.14	1.00	-.04	-.07	.16^{+}	.13	-.16^{+}	-.12	-.30**	-.20*	.06	-.05
5. drinkfm	-.02	-.14	-.08	-.10	1.00	.61***	.46***	.32**	.02	.12	.05	.01	-.11	.02
6. drinkff	-.10	-.18^{+}	.05	.07	.61***	1.00	.38***	.46***	-.13	-.05	-.03	-.11	-.06	.04
7. alcprom	-.01	.12	.02	.14	.46***	.38***	1.00	.47***	-.08	.00	-.04	-.03	-.05	-.06
8. alcprof	-.13	.09	.06	.02	.32**	.46***	.47***	1.00	-.05	.00	.00	-.06	-.03	.02
9. monitor OS	.09	.00	.08	-.21*	-.17^{+}	-.15	-.21*	-.07	1.00	.76***	.55***	.38***	-.30**	-.16^{+}
10. monitor YS	.07	.12	.02	-.13	-.09	-.13	-.07	-.06	.57***	1.00	.32***	.36***	-.15	-.11
11. warmth OS	.12	.05	-.03	-.13	-.14	-.11	-.13	.06	.52***	.25**	1.00	.81***	.00	.14
12. warmth YS	.13	.18^{+}	.04	-.04	-.21*	-.21*	-.02	.01	.24**	.35***	.65***	1.00	.14	.12
13. negativity OS	-.16^{+}	.49***	.05	.17^{+}	-.09	-.16^{+}	.19*	-.02	-.26**	-.04	.-.08	.15	1.00	.77***
14. negativity YS	-.17	.38***	.07	.03	-.15	-.18^{+}	.12	-.04	-.12	-.01	.04	.17^{+}	.71***	1.00

Note: correlation coefficients for mother reports below the diagonal and for father reports above diagonal
ctr ... CTS reasoning subscale; ctva ... CTS verbal aggression subscale; ctvi ... CTS violence subscale, dummy-coded (1=used violence); drinkfm ... maternal drinking frequency; drinkff ... paternal drinking frequency; alcprom ... maternal problem drinking; alcprof ... paternal problem drinking;
$^{+}$ p<.10, * p<.05, ** p<.01, *** p<.001

Association between marital distress and parent-child relationship: Pearson correlation coefficients for the relations between parent-child relationship measures (monitoring, warmth, and negativity) and the four indicators of marital distress are also shown in Table 7.1. Only few relationships achieved significance, with different patterns for mother and father and sibling status. Mothers reported higher monitoring of older siblings when they perceived greater marital quality (more satisfied, less arguments) ($r(116)=-.21$, $p<.05$). Maternal negativity was higher for older ($r(114)=.49$, $p<.000$) and younger siblings ($r(113)=.38$, $p<.000$) when mothers reported more verbal aggression. Fathers reported lower levels of warmth for older and younger siblings ($r(113)=-.30$, $p<.01$ and $r(113)=-.20$, $p<.05$, respectively) when they perceived lower marital quality. As with mothers, fathers' higher verbal aggression and also violence scores were associated with increased negativity toward older ($r=.32$, $p<.01$ and $r=.37$, $p<.000$, respectively) and younger siblings ($r=.28$, $p<.01$ and $r=.25$, $p<.01$, respectively) (all $N=114$).

Association between parental alcohol use and parent-child relationship: Again, Pearson correlation coefficients are provided in Table 7.1. Only four associations between parental alcohol use and mothers' reports of parenting behaviours were significant. Higher scores for maternal problem drinking were associated with lower monitoring of ($r(116)=-.21$, $p<.05$) and increased negativity toward ($r(116)=.19$, $p<.05$) older siblings. Fathers' and mothers' higher drinking frequency was related to lower maternal warmth toward younger siblings ($r(114)=-.21$, $p<.05$ each). No significant association were found with father reports of parent-child relations.

Prediction of parent-child relationship from parental alcohol use and marital relationship: For the regression analyses only those outcome measures and predictors were chosen where an association had been demonstrated in the correlational analyses. When more than one potential predictor had emerged, the variables were entered simultaneously. In case of a variable's redundancy, the variable was removed and the regression rerun. Only the results of the final models are presented in Table 7.2. Particularly evident is the role of spousal conflict in parent-child negativity for both parents and siblings.

For mothers, their monitoring of the older sibling was negatively predicted by both their report of marital quality and maternal alcohol problems, indicating less monitoring when mothers reported increased problem drinking and lower marital quality. Maternal warmth/support

toward the younger sibling was negatively affected by fathers' greater drinking frequency. Mother's drinking frequency would have predicted her warmth equally well if entered as the only predictor but did not achieve significance in the initial model, possibly due to the strong associations between maternal and paternal drinking frequency ($r(114)=.61$, $p<.000$). Negativity toward either sibling was predicted by mothers' verbal aggression, with the explained variance being substantial: 15% for younger and 24% for older siblings, respectively.

Table 7.2. Predicting parent-child relations from marital relationship and parental alcohol use

	Mother			**Father**		
Parenting	**$R^2(df_1, df_2)$**	**beta**	**predictor**	**$R^2(df_1, df_2)$**	**beta**	**predictor**
Monitoring OS	.08** (2, 113)	-.19* -.18*	Marital quality Mo Problem drinking			
Warmth OS				.09** (1, 111)	-.30**	Marital quality
Warmth YS	.04* (1, 111)	-.21*	Fa Drinking frequency	.04* (1, 111)	-.20*	Marital quality
Negativity OS	.24*** (1, 112)	.49***	CTS verbal aggression	.16*** (2, 111)	.21* .26***	CTS verbal aggression CTS violence[d]
Negativity YS	.15*** (1, 111)	.38***	CTS verbal aggression	.08** (1, 112)	.28**	CTS verbal aggression

Note: OS ... older sibling, YS ... younger sibling, Mo ... mother, Fa ... father; b ... standardised beta;
[d] ... dummy-coded (1=used violence);
* p<.05, ** p<.01, *** p<.001

Father-child relationships showed a somewhat different pattern (Table 7.2). Paternal warmth toward either sibling was predicted by fathers' perception of general marital quality, with lower marital quality being related to lower levels of warmth and support. Negativity toward older siblings was predicted by both fathers' verbal aggression and violence; negativity toward the younger sibling was only predicted by fathers' verbal aggression. Higher levels of aggression and/or violence were associated with greater conflict/negativity toward the siblings, with the

explained proportions of variance being: 8% for younger and 16% for older siblings, respectively.

Sibling gender similarity and parent-child relationship

As a further influence on parent-child relationships, whether they work similarly for older and for younger siblings, sibling gender (dis)similarity was examined. Means, standard deviations and results of the repeated measures ANOVAs are presented in Table 7.3 a) and b) respectively.

Table 7.3a). Mean (SD, N) for parent reported parenting quality by sibling gender similarity

Parenting quality - respondent	**Same sex siblings**		**Opposite sex siblings**	
	Older sib	**Younger sib**	**Older sib**	**Younger sib**
	M (SD, N)	**M (SD, N)**	**M (SD, N)**	**M (SD, N)**
Monitoring - Mother	58.87 (5.36, 55)	60.55 (5.76, 55)	55.03 (6.58, 61)	59.14 (5.52, 61)
Monitoring - Father	56.32 (5.81, 55)	57.93 (6.00, 55)	50.94 (8.42, 61)	54.80 (7.94, 61)
Warmth - Mother	.15 (.77, 55)	-.05 (.80, 55)	-.14 (.76, 60)	.02 (.77, 60)
Warmth – Father	.14 (.80, 55)	.07 (.86, 55)	-.12 (.81, 60)	-.06 (.73, 60)
Negativity - Mother	-.06 (.69, 55)	-.08 (.73, 55)	.05 (.88, 60)	.08 (.88, 60)
Negativity - Father	-.03 (.66, 55)	.00 (.74, 55)	.04 (.92, 60)	.01 (.87, 60)
EMD	1.66 (.50, 54)	1.52 (.42, 54)	1.71 (.54, 61)	1.61 (.52, 61)

Note: EMD … exposure to marital discord

Table 7.3b). Repeated measures ANOVAs for parenting: Sibling status (within-subjects factor) by sibling gender similarity (between-subjects factor) (df_1=1)

Parenting quality - respondent	**Df_2**	**Between subjects F**	**Within subjects F**	**Interaction**
Monitoring – Mother	114	**7.51****	**32.24*****	**5.63***
Monitoring – Father	114	**11.60****	**32.87*****	**5.59***
Warmth – Mother	113	.71	.11	**9.22****
Warmth – Father	113	1.90	.00	2.08
Negativity – Mother	113	.94	.01	.26
Negativity - Father	113	.09	.01	.37
EMD (composite)	113	.65	**14.25*****	.51

Note: EMD ... exposure to marital discord;
* p<.05, ** p<.01, *** p<.001

Significant between-group effects were only found for monitoring, suggesting lower maternal and paternal monitoring of opposite-sex siblings than of same-sex siblings. Overall, younger siblings received more monitoring and were less exposed to marital conflict than their older counterparts. Significant interactions between sibling gender similarity and parenting quality were found for monitoring and maternal warmth. Follow-up tests revealed the following pattern. Older siblings in opposite-sex pairs received less monitoring as compared a) their younger siblings and b) their counterparts in same-sex pairs (Mother: t(114)=3.42, p<.01; Father: t(106.98)=4.04, p<.001). Younger siblings in same-sex pairs were the recipient of higher paternal monitoring than a) their older siblings and b) their counterparts in opposite-sex pairs (t(110.69)=2.41, p<.05). Older siblings in same-sex pairs received more maternal warmth than their younger siblings (t(54)=2.75, p<.01) and their counterparts in opposite-sex pairs (t(113)=2.03, p<.05).

7.3.3. Summary

The present results demonstrated that marital distress, particularly aggressive behaviour of spouses, can disrupt parenting practices. Verbal aggression in the spousal relationship increased the risk of negativity to either child and perceived poorer marital quality was associated with less maternal monitoring of older adolescents and less paternal warmth across children.

Parental drinking behaviour only appeared to disrupt mothers' parenting, with her drinking problems decreasing older siblings' monitoring and fathers' high drinking frequency decreasing mothers' warmth toward the younger sibling. Few 'second order' effects of sibling gender similarity were discovered, the strongest for monitoring, with older siblings in opposite-sex pairs being at risk for lower monitoring from both parents than their younger siblings and counterparts in same-sex pairs. Overall, the highlighted causal pathways in Figure 7.2, but not the association between marital distress and parental drinking, have been confirmed. Evidence emerged for the influence of marital distress on parent-child relations and, to a lesser extent, for parental alcohol use on mothers' parenting behaviour.

7.4. Question 2: Relations among Parenting Quality, Sibling Relationship, and Adolescent Alcohol Use

In the second part of the model relations between parent-child and sibling relationship as well as individual alcohol use by siblings were explored. Congruence was expected between the quality of parent-child and sibling relationships (Stocker & McHale, 1992; Brody et al., 1992; Rinaldi & Howe, 2003). Child-specific as well as paradoxical cross effects of siblings' rearing environment on adolescent alcohol use were expected (Anderson et al., 1994; Feinberg et al., 2000; Reiss et al., 1995). Moreover, research on parent-child relationships also demonstrated the mediating influence of adolescents' perception of parenting on adolescent adjustment (Harold et al., 1997; Neiderhiser et al., 1998). Thus, the bold-printed, red arrows in Figure 7.3 reflect the following specific hypotheses to investigate the association between parent-child relationship, sibling relationship and adolescent alcohol use.

1. The quality of the parent-child relationship is related to sibling warmth and conflict.
   a) Parental warmth increases warmth and decreases conflict in the sibling relationship.
   b) Parental negativity reduces sibling warmth and increases sibling conflict.
2. Only child-specific parenting predicts adolescent alcohol use.
   a) Increased adolescent alcohol use is predicted by lower levels of monitoring and warmth and by higher levels of conflict and exposure to marital discord.
   b) The possible effects of a 'sibling barricade' are explored.

3. Adolescents' perception of parenting mediates the effect of parental reports on child-rearing behaviour such as warmth, monitoring, and negativity on adolescent alcohol use (shown in Figure 7.4).

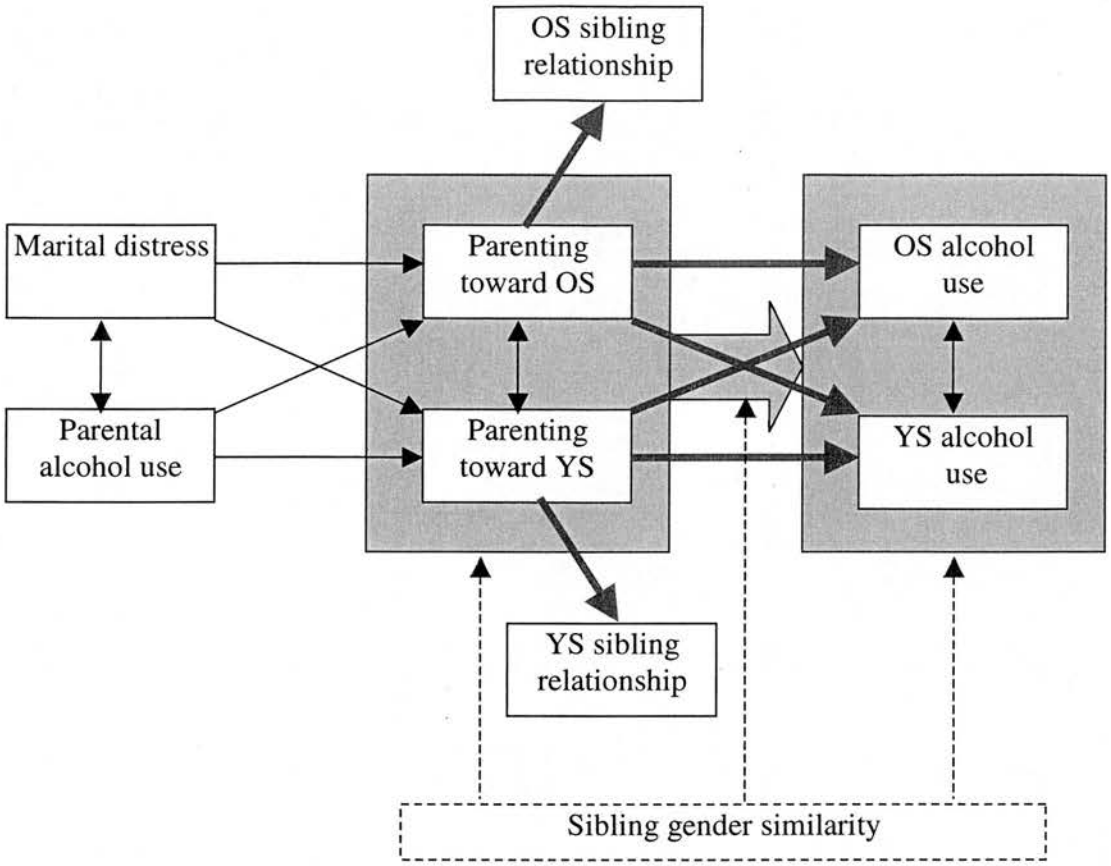


Figure 7.3. A theoretical model for predicting sibling alcohol use: Focus Question 2

Note: The model is examined separately for mother and father.

7.4.1. Method of Analysis

First, the relationship between parenting and sibling relationship was examined in multiple regression models. Only parental warmth and conflict were selected as predictors and entered simultaneously for testing relationship congruence. The models were computed for sibling warmth and conflict and separately for mother and father as well as parent and child reports of parenting.

To investigate the second set of hypotheses, alcohol involvement was selected as the adolescent outcome. Since the predictors were of aggregated nature, an outcome measure was chosen containing more information than a single-item indicator for drinking frequency (see Chapter 4). The composite measure of alcohol involvement considers wider aspects of young people's drinking, including drinking excesses and peer factors which appear as mediators of parental influence (e.g. Conger & Rueter, 1996; Kandel, 1996). Multiple regression models were computed to predict adolescent alcohol involvement. In addition to age (OS: $r(112)=.49$, $p<.001$; YS: $r(115)=.51$, $p<.001$), the predictors were parenting directed to the adolescent (specific effect) and parenting directed to the sibling (cross effect), which controlled for the sibling's environment (see Chapter 3: 'covariance model'). A 'sibling barricade' effect is indicated when the cross-path (e.g. '-') is of opposite sign than the specific path (e.g. '+'). The lack of a cross effect of the same sign as the specific path indicates that the environment is objectively and functionally nonshared (Turkheimer & Waldron, 2000; see also Chapter 3). These analyses included the three measures of parent-child relationships, namely monitoring, warmth and negativity, and exposure to marital distress (EMD). They were computed separately for parental reports and adolescents' perception of parent-child relations (except for EMD). This allows for considering individual's perspectives on family processes (Cox & Paley, 1997) as well as cross-rater analyses (see Chapter 4). Similar results in single-rater and cross-rater analyses then indicate greater credibility of the found association which cannot be entirely based on 'shared method variance' (Sweeting, 2001).

The third set of analysis explored the mediating influence of adolescents' perception of parental reports on adolescent outcome. Only those measures were examined where a significant relationship with adolescent alcohol involvement had emerged in the previous analyses for both parent and adolescent report. The investigation of the mediation process was based on Baron and Kenny's (1986) guidelines. Mediation (see Figure 7.4) can be established when three conditions are met. First, variation in the predictor variable is associated with variation in the mediator variable (Path a). Second, the mediator must be associated (i.e. correlated) with the outcome/dependent variable (Path b). And third, when Path a and b are controlled, the formerly significant association between parent reported parenting and adolescent alcohol use must be significantly reduced in strength (Path c). Only if all three conditions hold, it can be understood that adolescents' perceptions of parenting mediate the relationship between parental reports of

their behaviour and adolescent drinking behaviour. Perfect mediation is established when the predictor has no effect after controlling for the mediator. This mediation model in Figure 7.4 reflects a more detailed presentation of the child-specific path in the overall model in Figure 7.3. It has been extracted as a separate figure to avoid an overly complex depiction of the causal processes.

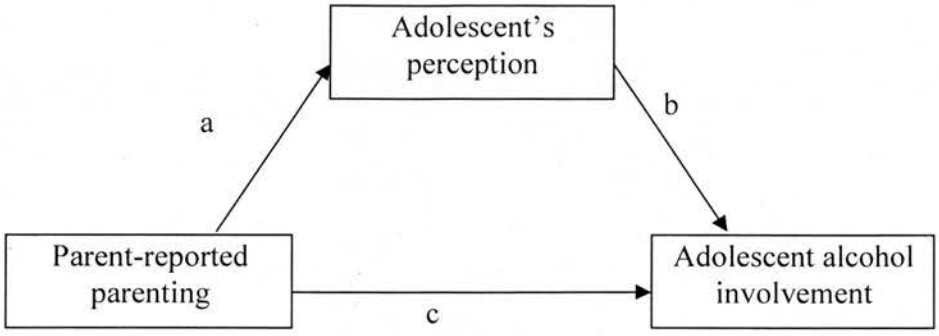


Figure 7.4. Mediational model of parenting on adolescent alcohol use

Hierarchical regression models were run to test the mediator model, entering age and parent-reported parenting in Step 1 and adolescents' perception of parenting in Step 2. Age needed to be included as a predictor due to its strong association with alcohol involvement. The analyses were only computed for monitoring, warmth, and negativity (EMD is composite across three respondents). All models were computed separately for older and younger siblings as well as for mother and father due to sample size.

7.4.2. Results: Parent-Child Relationship, Sibling Relationship, and Adolescent Alcohol Use

Relations between parenting quality and sibling relationship

Table 7.4 (shown on page 173) provides standardised regression weights for parental warmth and conflict as well as model statistics for each of the regression models. Sibling warmth was positively associated with warmth in the relationship with mother and father for older (beta range: .29 to .66, $p<.01$ or lower) and younger siblings (beta range: .24 to .53, $p<.01$ or lower). Further relationships emerged for mothers' negativity (older sibling; beta=-.21, $p<.05$) and parental negativity (younger sibling; beta range: -.27 to -.36, $p<.01$ or lower) which were negatively associated with sibling warmth. The models explained 21% to 44% of variance for

older siblings (except for father's report with 9% only) and 16% to 30% of variance in sibling warmth for younger adolescents. Sibling conflict, however, was only associated with adolescents' perception of parental negativity for older (beta range: .20 to .29, p<.05 or lower) and younger siblings (beta range: .33 to .37, p<.001). These models explained less variance than those for sibling warmth: 4% to 8% for older and 11% to 13% for younger siblings, respectively.

Child-specific and cross effects of parenting in the prediction of adolescent alcohol use

Findings of the multiple regression models investigating specific and cross effects of parenting on each sibling's alcohol involvement are reported in Tables 7.5 (page 174) and 7.6 (page 175). For older siblings (Table 7.5), age was clearly the strongest predictor in all models for mother and father (beta range: .45 to .53, p<.000). As predicted, child-specific parenting affected adolescent alcohol involvement in the hypothesised direction. For mother and father models, higher levels of monitoring (beta range: parent report -.36 to -.41, p<.01; adolescent report -.30 to -.36, p<.001) and warmth (beta range: parent report -.29 to -.31, p<.05 and lower) predicted lower alcohol involvement. Increased negativity (beta range: mother report .28, p<.05; adolescent report .19 to .21, p<.05) predicted higher alcohol involvement among older adolescents. No significant relationships were found for adolescent's perception of maternal and paternal warmth, father reports of negativity and exposure to marital discord.

Similar to their older siblings, age again was the strongest predictor for younger adolescents' alcohol involvement (beta range: .41 to .56, p<.001) and in some models the only predictor as is shown in Table 7.6. In contrast to their older counterparts, a different pattern of child-specific effects emerged. Higher levels of child-reported monitoring for mother and father predicted lower alcohol involvement among younger siblings (beta range: -.28, p<.01 each), and so did greater perceived paternal warmth (beta=-.18, p<.05). Increased negativity (beta range: parent report .23 to .27, p<.05; adolescent report .26 to .27, p<.01) and exposure to marital discord (beta=.44, p<.000) were significant predictors for increased alcohol involvement among younger siblings.

Table 7.4. Predicting sibling relationship from parental warmth and negativity (df_1=2)

	Older sibling				**Younger sibling**			
	R^2	**F (df_2)**	**Beta Warmth**	**Beta Negativity**	**R^2**	**F (df_2)**	**Beta Warmth**	**Beta Negativity**
Sibling warmth								
Mother	.21***	14.54 (112)	**.38*****	**-.21***	.16***	10.60 (111)	**.24****	**-.36*****
Father	.09**	5.74 (112)	**.29****	-.09	.16***	10.98 (112)	**.33*****	**-.27****
C – Mother	.44***	44.56 (111)	**.66*****	-.07	.30***	24.25 (111)	**.53*****	-.11
C - Father	.28***	21.62 (111)	**.53*****	.03	.23***	16.82 (111)	**.48*****	-.16[+]
Sibling conflict								
Mother	.01	.70 (112)	-.06	.09	.02	1.11 (111)	-.06	.14
Father	.02	1.30 (112)	-.03	.15	.04[+]	2.58 (112)	-.06	**.21*** [b]**
C – Mother	.08**	5.10 (111)	-.00	**.29****	.11**	6.86 (111)	.01	**.33*****
C - Father	.04	2.20 (111)	.04	**.20*** [a]**	.13***	8.62 (111)	-.00	**.37*****

Note: beta … standardised regression weight; C- … child report on parent

[a] perceived father conflict: single predictor F=4.26 (1, 112), p<.05, beta N=.19*

[b] father conflict: single predictor F=4.76 (1, 113), p<.05, beta N=.20*

[+] p<.10, * p<.05, ** p<.01, *** p<.001

Table 7.5. Predicting older siblings' alcohol involvement from parenting toward adolescent (specific effect) and parenting toward sibling (cross effect) (df_1=3)

	Monitoring		**Warmth**		**Negativity**		**EMD**
	self-report	**perceived**	**self-report**	**perceived**	**self-report**	**perceived**	**(composite)**
			Mother				
R^2	.36***	.34***	.28***	.26***	.28***	.29***	.26***
F (df_2)	20.56 (108)	18.61 (108)	13.94 (107)	12.32 (106)	13.99 (108)	14.45 (106)	12.60 (108)
beta age	.50***	.49***	.46***	.49***	.53***	.49***	.50***
beta specific	**-.41*****	**-.30*****	**-.31****	-.14^{+}	**.28***	**.19***	.19
beta cross	.15	-.04	.14	.06	-.19	.07	-.15
			Father				
R^2	.30***	.38***	.27***	.26***	.25***	.29***	
F (df_2)	15.72 (108)	21.62 (107)	13.42 (108)	12.50 (106)	11.99 (108)	14.70 (106)	
beta age	.50***	.45***	.48***	.49***	.51***	.50***	
beta specific	**-.36****	**-.36*****	**-.29***	-.16^{+}	.13	**.21***	
beta cross	.22^{+}	-.04	.24^{+}	.08	-.08	.06	

Note: EMD … exposure to marital discord; $^{+}$ p<.10, * p<.05, ** p<.01, *** p<.001

Table 7.6. Predicting younger siblings' alcohol involvement from parenting toward adolescent (specific effect) and parenting toward sibling (cross effect) (df_1=3)

	Monitoring		**Warmth**		**Negativity**		**EMD**
	self-report	**perceived**	**self-report**	**perceived**	**self-report**	**perceived**	**(composite)**
			Mother				
R^2	.28***	.32***	.27***	.30***	.31***	.32***	.34***
F (df_2)	14.26 (111)	17.68 (111)	13.50 (110)	15.76 (109)	16.54 (110)	17.31 (109)	19.34 (110)
beta age	.47***	.41***	.49***	.52***	.56***	.50***	.52***
beta specific	-.17$^+$	**-.28****	-.09	-.16$^+$	**.23***	**.27****	**.44*****
beta cross	.11	.08	.09	-.09	.01	-.06	**-.35****
			Father				
R^2	.28***	.34***	.28***	.30***	.32***	.32***	
F (df_2)	14.14 (111)	19.00 (110)	14.01 (110)	15.34 (109)	17.45 (110)	17.33 (109)	
beta age	.47***	.45***	.47***	.49***	.51***	.50***	
beta specific	-.17	**-.28****	-.24	**-.18***	**.27***	**.26****	
beta cross	.05	.07	.22	.01	-.02	-.11	

Note: EMD … exposure to marital discord; $^+$ p<.10, * p<.05, ** p<.01, *** p<.001

In relation to cross effects, the focus was on finding cross paths with opposite signs to direct paths, thus reflecting the '*sibling barricade*' pattern (Feinberg et al., 2000; Reiss et al., 1995). Only one cross path achieved significance: the model for exposure to marital discord and younger siblings' alcohol involvement (beta cross=-.35, p<.01). When the older, but not the younger, sibling was exposed to marital discord, younger adolescents showed less alcohol involvement. Two further cross paths were marginally significant in models for older siblings' alcohol involvement in relation to paternal monitoring and warmth. Disregarding the level of significance of paths, the 'sibling barricade' pattern emerged in 9/13 models and 11/13 models for older and younger siblings, respectively.

Mediator effect of adolescent's perception of parenting

This section of analysis examines the mediation influence of adolescent's perception (see Figure 7.4) only for parenting measures where both parent and adolescent report were significantly related to alcohol involvement: maternal and paternal monitoring; maternal negativity for older siblings; and maternal and paternal negativity for younger siblings. Results from the hierarchical regression analyses are shown in Table 7.7 (see following page). Instead of regression weights, correlation coefficients are presented for the association between parent and adolescent report since both are equal in a simple regression (Miles & Shevlin, 2001). Findings suggest that a) different aspects of the parent-child relationship were important regarding mediation processes for older and younger siblings and b) the mediation was largely only partial. For fathers' monitoring only, adolescents' perception perfectly mediated the relationship with older siblings' alcohol use (beta=-.20, p<.05 reduced to beta=-.04, n.s.).

7.4.3. Summary

The quality of parent-child and sibling relations was interrelated. Parental warmth predicted sibling warmth and parental negativity (adolescents' perception only) predicted sibling conflict. Focusing on adolescent outcome, adolescent alcohol involvement was, beside age, almost exclusively predicted by child-specific parenting behaviour, suggesting nonshared environmental experiences for each sibling. Differences emerged for older and younger siblings regarding what were significant parenting behaviours. For older siblings, parental monitoring, warmth, and negativity predicted alcohol use. Among younger siblings, parental negativity, perceived monitoring, and exposure to marital discord were significant predictors of alcohol

involvement. Although only one significant 'sibling barricade' effect was found (i.e. younger siblings showed lower alcohol involvement when the older sibling was more frequently exposed to marital discord), this pattern of opposite-signed cross paths emerged frequently. Furthermore, a partial mediation effect of parenting on adjustment by adolescents' perception was demonstrated for monitoring of older siblings and for negativity for younger adolescents. Adolescents' perceptions of parenting quality were important for assessing the influence of child-rearing behaviour on adolescent adjustment.

Table 7.7. Hierarchical regression: Adolescents' perception as mediator for mothers' and fathers' parenting on alcohol involvement

Parenting	**Regression model**	**r**	**IV beta**	**MED beta**	**R^2**
		Older sibling			
Monitoring:	IV-MED	.43***			
Mother	IV→DV		**-.32*** **		.35***
	IV+MED→DV		**-.24****	**-.21***	.38***
Monitoring:	IV-MED	.46***			
Father	IV→DV		**-.20***		.28***
	IV+MED→DV		-.04	**-.35*** **	.38***
Negativity:	IV-MED	.46***			
Mother	IV→DV		.15^{+}		.26***[a]
	IV+MED→DV		.06	.18^{+}	.29***[a]
		Younger sibling			
Negativity:	IV-MED	.26**			
Mother	IV→DV		**.24****		.31***
	IV+MED→DV		**.18***	**.20***	.35***
Negativity:	IV-MED	.20*			
Father	IV→DV		**.25****		.32***
	IV+MED→DV		**.21****	**.20***	.36***

Note: r ... Pearson correlation coefficient, beta ... standardised regression weight, MED ... adolescents' perception (mediator), IV-MED ... Pearson correlation between parent and adolescent report, IV→DV ... prediction of outcome from parent report, IV+MED→DV ... prediction of outcome from parent report by adding mediator

$^{+}$ p<.10, * p<.05, ** p<.01, *** p<.001; [a] model significant due to effect of age

7.5. Question 3: Differential Experiences with Parents and Their Relation to Differences in Siblings' Alcohol Use

Here, the association of differential monitoring, differential warmth, differential negativity and differential exposure to marital discord with sibling differences in alcohol use is examined within the difference score model (see Chapter 3). Such relations have been established for composite measures of deviance inclusive of alcohol use (e.g. Mekos et al., 1996; Monahan et al., 1993), with differences in findings possibly due to siblings' different gender combinations and the divorced/non-divorced family background. Therefore, sibling gender similarity as a moderator of level of differential experience and the association is considered. The following specific hypotheses are represented in Figure 7.5 by the blue fields and bold-printed, red arrows.

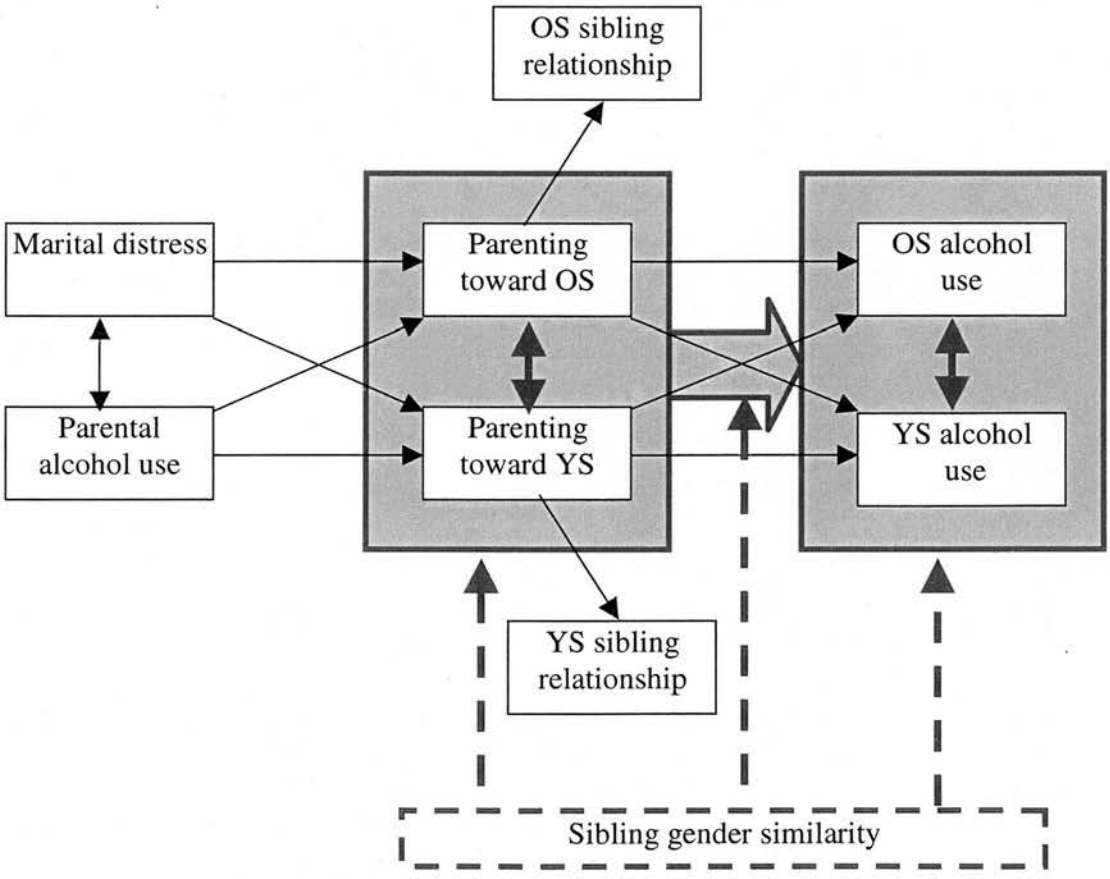


Figure 7.5. A theoretical model for predicting sibling alcohol use: Focus Question 3

Note: The model was examined separately for mother and father.

1. Sibling gender (dis)similarity leads to differences in differential parent-child relationships and differential sibling alcohol use.
2. Sibling differences in parenting environment predict differences in siblings' alcohol use. Adolescents receiving the less beneficial parental treatment (less monitoring, less warmth, higher conflict, and more frequent exposure to marital discord) relative to their sibling display higher alcohol use. Sibling gender (dis)similarity moderates the predicted associations.

7.5.1. Method of Analysis

To investigate sibling differences within families, difference scores are considered a useful strategy (see Rovine, 1994 for a detailed discussion on estimating sibling differences). Here, absolute and relative difference scores are distinguished. *Absolute difference scores* measure the magnitude of sibling discrepancy irrespective of birth order. For *relative difference scores* the birth order is taken into account and they are usually computed by subtracting the younger sibling's score from the older sibling's score. Whether older (+) or younger (-) sibling were higher on a measure is indicated by the sign of the difference score. Similarly, the sign of the correlation between two relative difference scores shows whether (+) or not (-) one adolescent is higher than their sibling on both measures. Despite criticism as being unreliable, difference scores are not less reliable than their original scores as long as they have adequate variability and the correlation between their constituent variables is low to moderate (Rovine, 1994). One disadvantage of difference scores is that they do not consider differences in mean level nor in distribution of the constituent variables (Deal, Halverson, & Smith Wampler, 1994; Rovine, 1994).

For Hypothesis 1, absolute difference scores were used to test for differences between groups of same- and opposite-sex siblings. The variables included only parental reports of monitoring, warmth, and negativity as well as the composite exposure to marital discord and adolescent alcohol involvement. Because alcohol involvement was related to siblings' age, the score was adjusted for age effects by converting the alcohol involvement indices in age-residualised scores for older and younger siblings. The computed difference score reflected differences in alcohol use after partialling out the effect of age. The absolute difference scores for parenting and

adolescent alcohol use measures were analysed in a series of one-way ANOVAs for the two groups of sibling gender similarity.

The second set of hypotheses was examined with simple regression models predicting relative difference scores for alcohol involvement from relative difference scores for parenting as shown in Figure 7.5 (see Mekos et al., 1996; Turkheimer & Waldron, 2000). Here, relative difference scores were employed for predictors and outcome since the main interest concerned which sibling received less beneficial and more adverse treatment. The relative difference score for alcohol involvement was again computed with the age-residualised alcohol scores. Regression analyses were first run for the overall sample and then conducted separately for same- and opposite-sex sibling pairs.

One study, exploring sibling differences (Tejerina-Allen et al., 1994), controlled for between-family differences before entering the within-family difference score. Other researchers did not include this procedure (Mekos et al., 1996, Monahan et al., 1993) and Reiss et al. (1994) provide a rationale for not including it:

> *The assumption behind the use of simple or uncorrected difference scores is that these scores reflect what each child actually perceives. That is, the child has firsthand knowledge of he or she is being treated and how his or her sibling is being treated. The child, according to this assumption, cannot know or perceive levels of the same variable in other families, and thus to correct for these between-family differences may not only be unnecessary but distorting.* (p. 102)

7.5.2. Results: Within-Family Differences in Rearing Environment and Sibling Differences in Alcohol Use

Table 7.8 provides descriptive statistics as well as the cross-sibling correlation for alcohol involvement, exposure to marital discord, and parent-child relationship measures. The high cross-sibling correlation for parents' reports of parenting toward either sibling may reflect a single respondent bias ('shared method variance', Sweeting, 2001) or parents' desire and view to treat their children similarly (Reiss et al., 1994). Such a high interrelation may impose limitations on the reliability of sibling difference scores. However, the reliability of difference scores may be less affected because the scores of the constituent composite parenting variables had good internal consistencies.

Table 7.8. Descriptive statistics for absolute and relative difference scores and cross-sibling correlations for alcohol involvement and parenting

	Absolute differences				Relative differences				Sib correlation
	Mean	**SD**	**Min.**	**Max.**	**Mean**	**SD**	**Min.**	**Max.**	**r (N)**
Alcohol Involvement Scale	1.05	.86	.02	4.76	-.02	1.36	-4.76	3.15	.07 (111)
Exposure to marital discord	.25	.28	.00	1.33	.12	.35	-.83	1.33	.75*** (115)
Parental report of parenting									
Mother Monitoring	4.13	4.79	.00	24.00	-2.96	5.60	-24.00	16.00	.57*** (116)
Mother Warmth/Support	.48	.44	.00	2.77	.01	.65	-2.77	1.54	.65*** (115)
Mother Conflict/Negativity	.44	.43	.01	2.10	-.01	.62	-1.96	2.10	.71*** (115)
Father Monitoring	3.73	4.61	.00	23.00	-2.79	5.23	-23.00	10.00	.76*** (116)
Father Warmth/Support	.35	.35	.00	1.90	-.00	.50	-1.55	1.90	.81*** (115)
Father Conflict/Negativity	.39	.38	.00	1.88	-.00	.54	-1.88	1.47	.77*** (115)
Adolescents' perception of parenting									
Mother Monitoring					-5.05	9.46	-35.00	17.00	.30** (116)
Mother Warmth/Support					.02	1.07	-3.00	2.51	.18^{+} (114)
Mother Conflict/Negativity					-.02	.95	-3.67	3.17	.26** (114)
Father Monitoring					-6.06	10.00	-33.00	21.00	.33*** (115)
Father Warmth/Support					.02	.98	-2.60	2.93	.27** (114)
Father Conflict/Negativity					-.02	.99	-3.99	4.23	.15 (114)

$^{+}$ p<.10,** p<.01, *** p<.001

Differences between same- and opposite-sex siblings in absolute differences in alcohol involvement and rearing environment

Findings from the one-way ANOVAs, presented in Table 7.9, indicate differences for absolute difference scores only for mothers' and fathers' monitoring. Opposite-sex siblings experience greater absolute differences in monitoring than do same-sex siblings (Mother: t(96.84)=-2.81, p<.01; Father: t(93.32)=-2.57, p<.05). No further significant differences in parenting environment or adolescent outcome were found for same- and opposite-sex pairs.

Table 7.9. Mean differences (ANOVA) in absolute difference scores for sibling alcohol use and parenting: Same- and opposite-sex pairs (df_1=1)

	M (SD) same-sex	**M (SD) opposite-sex**	**F (df_2)**
Alcohol involvement	.98 (.78)	1.11 (.94)	.57 (109)
Exposure to marital discord	.25 (.29)	.24 (.27)	.04 (113)
Monitoring - Mother	2.88 (3.21)	5.26 (5.66)	**7.47** (114)**
Monitoring - Father	2.63 (2.95)	4.72 (5.55)	**6.24* (114)**
Warmth - Mother	.41 (.38)	.54 (.48)	2.24 (113)
Warmth - Father	.30 (.27)	.40 (.40)	2.65 (113)
Negativity - Mother	.41 (.42)	.46 (.44)	.50 (113)
Negativity - Father	.34 (.35)	.44 (.39)	2.18 (113)

* p<.05, ** p<.01

Relations between differential parenting and differences in alcohol involvement

Findings from the simple regression models predicting relative differences in siblings' alcohol involvement generally support the hypotheses in the overall sample (Table 7.10). Differential monitoring, warmth (except for siblings' perception of mother), negativity (except for father report), and exposure to marital discord were significantly related to differences in alcohol use. Differential warmth (4% to 6%) and conflict (5% to 6%) explained smaller variance proportions in differences in alcohol use than differential monitoring (6% to 11%) and exposure to marital discord (11%). The direction of the effect was as predicted. An adolescent was at risk for higher alcohol involvement relative to his/her sibling when they received less monitoring, less warmth, more negativity and were more frequently exposed to marital discord relative to this sibling.

When same- versus opposite-sex siblings were investigated, differences in predicting differential alcohol involvement emerged as Table 7.10 shows. For opposite-sex siblings, differential monitoring, differential paternal warmth (maternal warmth only marginally significant) as well as differential maternal negativity (mother report) were significantly associated with sibling differences in alcohol use and explained between 13% to 15%, 10% to 14%, and 12% of variance, respectively. Among same-sex siblings, differential alcohol involvement was predicted by differences in perceived paternal monitoring, maternal and paternal negativity, and most strongly by differential exposure to marital discord, explaining 8%, 10% to 15%, and 23% of the variance, respectively.

7.5.3. Summary

Same- and opposite sex siblings generally experienced similar parental environments in regard to absolute differences in parenting. The exception was monitoring where greater differences between siblings were reported by parents of opposite-sex pairs. A universal pattern in predicting differential sibling alcohol use needs to be rejected because somewhat different patterns between same- and opposite-sex siblings emerged. For opposite-sex siblings, differences in monitoring and paternal warmth were significant predictors, suggesting the importance of differences in positive parent-child interaction. Among same-sex pairs, differences in more negative family interactions such as differences in perceived parental negativity and differential exposure to marital discord were of greater significance. Though for different parenting dimensions, differential interaction particularly with fathers appeared significant for outcome differences in same- and opposite-sex siblings (monitoring and conflict, respectively).

Table 7.10 . Predicting relative differences in alcohol involvement from differential parenting (df_1 =1): Overall and by sibling gender similarity

Respondent	Overall sample		Same-sex siblings		Opposite-sex siblings	
	R^2 (df_2)	Beta	R^2 (df_2)	Beta	R^2 (df_2)	Beta
Monitoring						
Mother	.11*** (109)	**-.34*** **	.05 (52)	-.22	.13** (55)	**-.36** **
Sibs on Mother	.10** (109)	**-.31** **	.05 (52)	-.22	.15** (55)	**-.39** **
Father	.06* (109)	**-.24***	.03 (52)	-.16	.06^{+} (55)	-.24^{+}
Sibs on Father	.11*** (108)	**-.33*** **	.08* (52)	**-.27***	.15** (54)	**-.38** **
Warmth/Support						
Mother	.04* (108)	**-.19***	.00 (52)	-.01	.05^{+} (54)	-.22^{+}
Sibs on Mother	.03^{+} (107)	-.18^{+}	.00 (50)	-.03	.05^{+} (55)	-.23^{+}
Father	.06** (109)	**-.25** **	.00 (52)	.00	.14** (55)	**-.37** **
Sibs on Father	.05* (107)	**-.23***	.01 (50)	-.10	.10* (55)	**-.31***
Conflict/Negativity						
Mother	.05* (109)	**.22***	.01 (52)	.10	.12* (55)	**.34***
Sibs on Mother	.05* (107)	**.22***	.10* (50)	**.32***	.05 (55)	.22
Father	.02 (109)	.13	.00 (52)	.05	.03 (55)	.18
Sibs on Father	.06** (107)	**.25** **	.15** (50)	**.38** **	.04 (55)	.20
Exposure to marital discord						
Composite	.11*** (109)	**.33*** **	.23*** (52)	**.48*** **	.06^{+} (55)	.24^{+}

Note: beta … standardised regression weights; $^{+}$ p<.10, * p<.05, ** p<.01, *** p<.001

7.6. Discussion

In this chapter, alcohol use among adolescent siblings was examined in relation to the marital and parent-child subsystems concurrently. In a stepwise approach the interrelations between subsystems were explored for a) the marital subsystem in relation to the parent-child subsystem and b) the parent-child subsystem in relation to individual sibling's alcohol use and sibling relations. An additional set of analysis concerned the relationship of differential parenting on sibling differences in alcohol use. The present results stress the importance of exploring the larger context of interrelated subsystems within families for investigating individual adjustment (Minuchin, 1985). The following sections summarise and discuss findings and examine the limitations of this specific analytic approach.

7.6.1. Marital Relations, Parent-Child Relations and Siblings' Alcohol Use

Consistent with previous research (e.g. Conger et al., 1994; Davies & Cummings, 1994; Hetherington et al., 1999), marital distress and, to a lesser extent, parental alcohol use were related to disruption in parenting. Results, however, varied for mothers and fathers. In relation to marital distress, mothers and fathers using verbal aggression toward each other showed higher negativity to either child. Perceived poorer marital quality among mothers was associated with reduced monitoring of older adolescents and among fathers' with lower warmth across children. Thus, it appears that parents experiencing increased levels of marital distress leads to compromised parenting towards both children. This has previously been shown by Henderson et al. (1996) for the effect of high economic stress mediated via parental depression and marital conflict. They then concluded that these factors may contribute to risk and resilience processes between families but do not govern within-family processes. More recently, Jenkins et al. (2003) found that mixed gender siblings experienced greater differential negativity, whereby boys generally received greater negativity than their sisters. This finding seems to contradict the results of this chapter. Yet, sibling gender combination was not examined as a moderator for the association between marital distress and parenting. But there are substantial differences between Jenkins et al.'s (2003) Canadian study as compared to this investigation. Their findings are based on a representative sample and on children between the ages 4 and 11 years; this study relied on a convenience sample of middle class background and adolescents' ages ranged from 11 to 19. Others also reported differences in parenting behaviour towards boys and girls across families due to interparental discord (e.g Sturges-Apple et al., 2004).

Thus, such gender-specific effects cannot be excluded for the present sample and would demand further exploration.

In terms of drinking behaviour, only mothers' parenting was related to her drinking problems which were associated with decreased monitoring of older siblings. Fathers' higher drinking frequency was also related to mothers' lower warmth and support toward younger siblings. The lack of influence of fathers' drinking problems on his parenting may be due to fathers' drinking not being deviant enough in this highly selective sample (e.g. Conger et al., 1994). In general, parental drinking emerged as less a stressor to parent-child relationships here. Similarly, the lack of an association between parental drinking and marital distress also indicates the rather unproblematic nature of parental alcohol consumption in this sample (Chapter 5). Investigations of families where at least one partner has a (diagnosed) drinking problem certainly have demonstrated the interrelation with marital quality (McCrady, 1990; Steinglass et al., 1987).

Sibling gender combination has been considered as a third determinant of parenting. Being an older or younger sibling in a same- or opposite-sex pair mattered in relation to parental monitoring and maternal warmth. For instance, older siblings in opposite-sex pairs were the group receiving the lowest monitoring. With monitoring being among the best predictors for adolescent alcohol use and problem behaviour (e.g. Aseltine, 1995; Cottrell et al., 2003; Huebner & Howell, 2003; Patterson & Stouthammer-Loeber, 1984), this interaction effect may put these older siblings at a particularly increased risk for higher alcohol use.

In the next step of analysis, parent-child relationship measures were related to the quality of the siblings' relationship and individual sibling's alcohol use. Findings were consistent with research suggesting congruence between the quality of sibling and parent-child relations (Brody & Stoneman, 1994; Brody et al., 1992; Furman, 1995; Rinaldi & Howe, 2003; Stocker & McHale, 1992). Sibling warmth was associated with parental warmth and also with lower levels of maternal negativity for both siblings and paternal negativity for younger ones only. For sibling conflict, however, relationships emerged only for adolescents' perception of parental negativity. Overall, the relationship with mother and father appeared to be equally important in relation to each sibling's perception of their relationship with their brother or sister in contrast

to findings by Brody et al. (1992). Moreover, previous research has shown an association between the quality of the spousal, parent-child and sibling relationship (e.g. Brody et al., 1992; Furman, 1995; Margolin et al., 2004; Rinaldi & Howe, 2003), indicating the importance of shared influences on family climate (Reiss et al., 2000; Steinberg & Morris, 2001). This study confirms such interrelations.

In predicting individual sibling alcohol use, parenting directed to the adolescent was almost exclusively the only significant predictor for adolescent alcohol use among older and younger siblings over and above age. This confirms findings by others that child-specific parenting (i.e. their nonshared experience) is important for child adjustment (e.g. Anderson et al., 1994; Reiss et al., 1995). However, older and younger siblings differed in which parenting measures were related to their drinking behaviour. Parental negativity predicted outcome in both siblings. Whereas for older adolescents parental monitoring and warmth also predicted alcohol use, exposure to marital discord and the perception of parental monitoring were predictors for younger siblings' drinking behaviour. This suggests the greater importance of more negative family interactions and children's perception of parental behaviour for younger siblings as compared to older adolescents. In addition, it stresses the increasing importance of monitoring as adolescents grow older.

Results further seem to reflect findings from a meta-analysis by Rothbaum and Weisz (1994) who discovered stronger parental socialisation effects regarding externalising behaviour for older than for younger children. The authors attribute this stronger effect for older adolescents to cumulative effects of reciprocal parent-child interaction. Child effects on parental behaviour have been demonstrated in previous research (Conger & Conger, 1994; Ge et al., 1996; Stattin & Kerr, 2005; Stice & Barrera, 1995; see also discussion by Rothbaum & Weisz, 1994). For example, Patterson's model of coercive interaction style in families with antisocial boys represents such cumulative processes (e.g. Bank et al., 1996; see also Chapter 3). In Rothbaum and Weisz' (1994) meta-analysis the differences in socialisation effects emerged between childhood and adolescence. Their findings may be applicable to the adolescents here where younger siblings were in early adolescence and older siblings in mid-adolescence, hence providing more time for cumulative effects and to consolidate reciprocal interaction.

A further finding for younger siblings deserves attention. For exposure to marital discord a significant cross-effect of older sibling's exposure was found, indicating a socialisation effect which was termed the 'sibling barricade' by Reiss et al. (1995). Except for Reiss and colleagues (1995), this effect has received relatively little research attention. More recently, Feinberg et al. (2000) re-examined the same data (NEAD project) and confirmed earlier findings and further contributed by demonstrating moderator effects of level of differential parental treatment. What is surprising in the present study is the strength of the 'sibling barricade' effect for exposure to marital discord. This cross effect was stronger than being the direct recipient of parental monitoring (in reducing alcohol use) and parental negativity (in increasing alcohol use). Thus, these results clearly stress the importance of differential experiences siblings have with their parents for individual adjustment (Conger & Conger, 1994; Hetherington et al., 1994; Reiss et al., 2000).

Although a significant effect emerged in only one analysis, the pattern of results in this study indicates a widespread sibling barricade effect. That is, the sibling's rearing environment affects the adolescent conversely compared to the adolescent's own parenting. There may be several interpretations of the potential mechanisms behind this sibling barricade effect. One interpretation, as noted in Chapter 3, are psycho-dynamic accounts, such as 'sibling de-identification' or 'parental salvaging' (see also Chapter 8). Yet, social learning principles, an important framework of this thesis, have generally not been considered. Generalising behaviour learned in one context to other contexts explains similarity better than differences (see also Chapter 8). Therefore, the principle of generalisation seems more appropriate to explain the congruence in quality among family relationships, than the differential sibling outcome of the sibling barricade effect.

Vicarious learning may reflect a more suitable social learning principle to explain the sibling barricade effect. Parents may notice that their treatment of one child resulted in problematic behaviour (e.g. heavy alcohol consumption) and thus use a different parenting approach with the other sibling (congruent with 'parental salvaging'). Such a process, however, requires that parents consciously connect their treatment of one child (e.g. exposing one sibling to marital discord) to the behaviour of that child (e.g. alcohol use). Yet, to assume such deliberate self-corrective behaviour (in the parenting toward the sibling) seems rather unlikely in parents who

are troubled by marital conflict. In contrast, the younger sibling may observe that the older sibling's alcohol use results in negative parental responses. Due to this vicarious experience he/she could then show lower alcohol use to prevent this parental response, thus leading to differential parenting. The differences in parental responses may then act as differential reinforcement of siblings' behaviour. As the cross-sectional data do not allow determination of causal influence, both directions of effects between parent and adolescent behaviour need to be considered (see also Chapter 8).

Within the association of parenting and adolescent drinking, it was shown that adolescents' perceptions of parenting seem to present powerful cognitive mediators in the process. Such partial mediation effects were demonstrated for monitoring (older siblings) and for negativity (younger siblings), thus confirming previous findings (e.g. Harold et al., 1997; Neiderheiser et al., 1998). Consistent with previous research, results suggest the importance of adolescents' perception in assessing the impact of parenting on developmental outcome but also point to the salience of parent-reported behaviour in relation to adjustment.

As the final step of the investigation of the causal model, differences in the rearing environment were related to siblings' differential alcohol use. These associations were examined for the overall sample and separately for sibling gender (dis)similarity groups. Dissimilarities in differential parenting emerged only for parental monitoring, with opposite-sex siblings reporting greater absolute differences than same-sex pairs. Different qualities in the adolescents' relationship with parents predicted sibling differences in alcohol use for the two gender similarity groups. For same-sex siblings, differences in perceived negativity from mother and father as well as differential exposure to marital discord were related to outcome differences. This suggests a greater significance of differences in negative family interactions. Differences in monitoring as well as in paternal warmth predicted differential alcohol use among opposite-sex siblings. Here, the importance of differences in positive aspects of parent-child relations is stressed. Overall, the sibling receiving the less beneficial treatment reported greater alcohol involvement.

The present findings partly confirm previous research. Mekos et al. (1996), who investigated same-sex pairs only, found a relation between differential exposure to marital discord and

differences in problem behaviour, including alcohol use, in nondivorced families. The further effect of differential paternal warmth and differential monitoring they reported for same-sex siblings was found for opposite-sex siblings here. Findings from divorced and remarried families regarding differences in conflict/negativity (Mekos et al., 1996; Monahan et al., 1993) were found here for same-sex sibling pairs in intact families. The present findings add further confusion and should be treated with caution due to the small sample size and its selectivity that will be discussed in greater detail in Chapter 8. With the exception of monitoring, no differences in absolute levels of parenting or in its absolute difference scores emerged in this study between the gender similarity groups. Yet, same- and opposite-sex siblings showed differential sensitivity to differences in intrafamilial processes, stressing the importance for acknowledging sibling gender.

In summary, the findings largely confirmed the proposed causal pathways as shown in Figure 7.6. Bold printed arrows present strong support for a relation and thin arrows reflect fewer supportive findings. Not confirmed, but previously proposed, associations are eliminated. Marital distress and, to lesser extent, parental drinking are associated with disrupted parenting, particularly increase negativity in the parent-child relationship with both siblings. Parent-child warmth and conflict were related to sibling warmth and conflict, confirming congruence of relationship quality in various family subsystems. Child-specific parenting was associated with absolute levels of adolescent alcohol use but more for older than for younger siblings. For younger siblings, however, older siblings' greater exposure to marital discord was related to lower alcohol involvement among younger adolescents. Adolescents' perceptions play an important role as mediators of parenting and in their own right. The importance of gender similarity is also stressed regarding differential parenting in relation to differential adjustment. Sibling differences in alcohol use, after controlling for age, were associated with differences in parent-child relationship. A higher sensitivity for positive parent-child interactions among opposite-sex siblings and for negative family interaction among same-sex pairs was found.

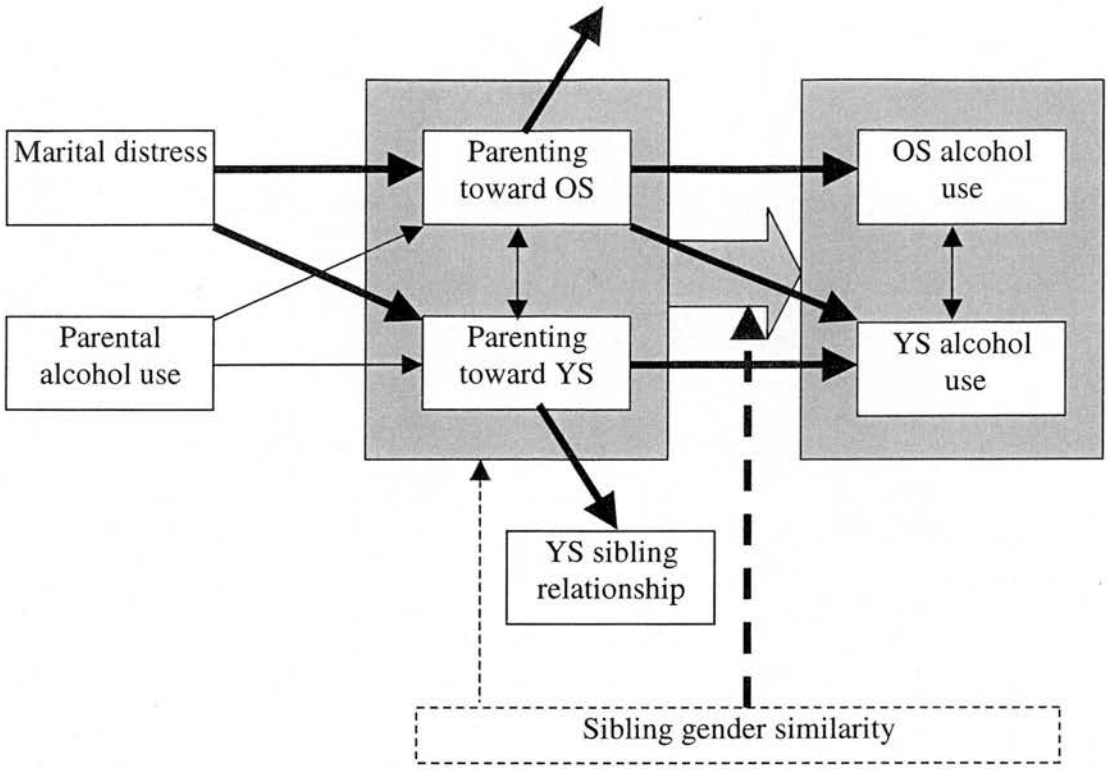


Figure 7.6. Confirmed empirical model predicting sibling alcohol use

Note: Evidence summarised across findings for separate mother and father models.

7.6.2. Limitations

Several specific limitations to this part of the thesis must be acknowledged here. More general methodological issues will be examined in Chapter 8. One major issue concerns the direction of causality which must be treated with caution due to the cross-sectional data (see also Chapter 8) and the correlational analysis. Chapter 3 already pointed out that relations among subsystems are reciprocal (Cox & Paley, 1997), not simply unidirectional, and other pathways, in the opposite direction to those proposed, may be equally possible (Cummings & Davies, 2002; Furman, 1995; O'Connor, 2002). Particularly for the association between parenting and child adjustment the influence seems rather bidirectional (see Hetherington & Clingempeel, 1992; Rothbaum & Weisz, 1994 for discussion; Conger & Conger, 1994; Stattin & Kerr, 2005; Stice & Barrera, 1995). However, child-driven effects have not always been found in longitudinal studies (Jodl et al., 1999).

& Barrera, 1995). However, child-driven effects have not always been found in longitudinal studies (Jodl et al., 1999).

The strong association between parenting and adolescent outcome may overestimate effects considering that longitudinal studies often provide less strong relationships (Rothbaum & Weisz, 1994), particularly regarding differential experiences (Jodl et al., 1999). For example, Jodl et al. (1999) found no effect of differences in parenting on absolute levels of adjustment three years later. Moreover, differential parenting explained only a small proportion in adolescent adjustment once child-specific parenting has been taken into account (Feinberg & Hetherington, 2001; Tamrouti-Makkink, Dubas, Gerris and van Aken, 2004). Thus in relation to the effect size of differential parenting, Turkheimer and Waldron (2000) concluded in their meta-analysis that cross-sectional studies and those confounding genetic relatedness produce larger effect sizes. In contrast, reliance on indirect reports from others instead of using direct observation of the environment result in smaller effect sizes. The present findings on differential parenting may therefore be compromised.

The multiple testing which may have supported the emergence of chance effects imposes a further limitation on the findings. Considering the exploratory nature of the study this was to some extent inevitable. Testing the proposed complex processes in structural equation models (e.g. Jodl et al., 1999; Reiss et al., 1995) could have been considered an alternative but was not permitted by the small sample size. Other researchers used younger siblings to replicate findings on older siblings (Jodl et al., 1999). This approach was rejected because it would have limited the exploration of family processes for siblings to showing that similar processes either work or do not work for younger siblings as they do for their older counterparts. The study here clearly showed differences for older and younger siblings (e.g. parenting practices affecting alcohol involvement).

A final issue concerns the appropriateness of the marital quality measure, which was developed for the study. In relation to marital conflict being detrimental to child adjustment, Cummings (Cummings, 1994; Cummings & Davies, 2002) summarised such aspects of conflict as intensity, being unresolved and aggression as more salient than the occurrence of marital conflict per se. Whether the instruments employed here adequately captured these aspects remains uncertain.

7.6.3. Conclusion

Overall, the findings support the theoretical perspective of interdependent family subsystems which are interactively and dynamically related with one another (Minuchin, 1985). The analyses demonstrated connections between marital and parent-child subsystems as well as parent-child subsystem in relation to the sibling subsystem and adolescent alcohol use. Empirical evidence is provided for the importance of nonshared experiences among siblings for their alcohol use. Differential parenting has differentiating effects on the drinking behaviour of adolescent siblings. Furthermore, the necessity of considering sibling gender when exploring intrafamilial processes is suggested. Despite the discussed limitations, the study emphasises the need to consider relations among the various family subsystems in regard to adolescents' alcohol use. This thesis has expanded the understanding of interrelations among family subsystems and siblings' adjustment to the area of adolescent alcohol use.

CHAPTER 8
DISCUSSION:
SIBLINGS, PARENTS AND ALCOHOL USE

8.1. Introduction

The thesis set out to investigate the influence of alcohol-specific and non-alcohol-specific aspects of the intrafamilial environment on alcohol use among adolescent siblings. Although the present findings are not based on an intervention study, they have important practical implications. Primary research, like this thesis, that supports the role of family factors in the aetiology of adolescent alcohol use provide the empirical background for programme development. Moreover, this thesis expands the sparse British evidence base (e.g. Foxcroft & Lowe, 1995, 1997; Shucksmith et al., 1997) by its focus on within-family factors which may contribute to the greater risk of one adolescent as compared to his/her sibling. Recent advances in socialisation research had not been adopted in relation to research on adolescent drinking behaviour. These advances concern the inclusion of siblings and more comprehensive accounts of the family environment (family systems, stresses and strains). However, such approaches allow for a more detailed examination of within-family influences on individual sibling's alcohol use. This will eventually aid a better understanding of sibling similarity and differences in alcohol consumption. This thesis has contributed to expanding knowledge in these areas guided by two major aims.

According to the first aim, alcohol-specific family factors were investigated in relation to adolescent alcohol use thereby drawing on social learning principles (see Chapter 6). Central here was the traditional focus on the role of parental influences combined with the recent attention to older siblings' effects. In contrast, the second aim took a much broader view on non-alcohol-specific family factors in relation to adolescent alcohol use. Here, the complex interplay of marital and parent-child relations and adolescent alcohol use was examined in an antecedent-consequence model (see Chapter 7). This model further considered siblings' differential experiences with parents. Both perspectives can be viewed as complementary rather than as competitive in explaining siblings' alcohol use because they concern different aspects of the family environment. This complementary aspect of both approaches became particularly

evident regarding the role of the sibling relationship. In regard to social learning of alcohol use among siblings (as reported in Chapter 6), sibling relations seem to play a conditioning role; their quality is also associated with the quality of parent-child relations (as reported in Chapter 7). Overall, both views have been shown to be useful tools in explaining adolescents' drinking behaviour from a within-family perspective. However, both approaches also demonstrated limitations in this endeavour here in this thesis.

The purpose of this final chapter is to draw together findings based on the separate analyses presented in this thesis in relation to the different approaches. The aim is not simply to repeat the discussion of the preceding two chapters but to focus on main findings. This also demands integrating the findings relating to both alcohol-specific and non-alcohol-specific aspects of the family environment. Furthermore, the main findings will be discussed within a broader frame of theories and research evidence relating to influences on and contexts of adolescent alcohol use and development in general. Additionally, attention is paid to the thesis' implications for alcohol education and prevention. Finally, limitations of the thesis are discussed, concluding with suggestions for further research.

8.2. Summary of Empirical Findings

The first empirical analyses were presented in Chapter 5 but did not contribute directly to the main aims of this thesis. These findings, however, provided an important background for the subsequent analyses. The findings reported in Chapter 5 suggest that alcohol consumption among family members is lower than national surveys report. Thus, the representativeness of the sample is limited. In addition, the empirical analysis showed that family members generally diverge in their view on family relationships and certain behaviours and attitudes (e.g. parental drinking norms). This lack of congruence supported the use of individual reports and repeated analyses for different respondents in Chapters 6 and 7.

The first main part of the empirical analysis, presented in Chapter 6, considered the influence of alcohol-specific family factors on adolescent alcohol use. Results add to the long list of successful applications of social learning principles (e.g. Bandura, 1977; Kandel & Andrews, 1987) to the area of adolescent alcohol use (e.g. Ary et al., 1993; D'Amico & Fromme, 1997; Hellandsjø Bu et al., 2002; Needle et al., 1986; for reviews see Hawkins et al., 1992; Petraitis et al., 1995). Parents and siblings facilitate adolescent alcohol use through modelling,

encouragement, and provision of alcohol (Ary et al., 1993; Brook, Whiteman et al., 1990; McGue et al., 1996a; Needle et al., 1986). One major restriction needs to be added to this statement: intrafamilial similarity emerged largely only among male family members (except for older males and their mothers). Generally, gender composition appeared as an important modulator in these dyads (parent-child, siblings). Gender symmetry in parent and offspring alcohol use (from mother to daughter/father to son) was not shown. Findings rather indicate greater vulnerability of male adolescents to parental influence. Furthermore, parental alcohol norms were of greater salience than parents' actual drinking behaviour for older (male) adolescents' alcohol consumption (e.g. Foxcroft et al., 1999; Peterson et al., 1994).

In relation to sibling influence, brothers showed substantial similarity in alcohol use, while sisters' drinking was completely unrelated. Additionally, older siblings' provision of alcohol was significant for younger siblings' alcohol use in same-sex pairs but not in mixed-sex pairs. In contrast to the moderating effect of sibling demographics, little support emerged for sibling interaction conditioning sibling similarity in alcohol use. Findings indicate that a conflict-free sibling relationship among same-sex siblings may foster social learning of alcohol use.

Chapter 7 complements this first part of the main empirical analyses by examining non-alcohol-specific family factors. Marital distress and lesser though parental alcohol use disrupted parenting efforts, particularly by increasing conflictual and coercive interaction between parent and adolescent. Parent-child relations in turn affected sibling relations and adolescent drinking behaviour. The evidence therefore suggests congruence in the quality of marital, parent-child, and sibling relationships which confirms previous reports (Brody & Stoneman, 1996; Furman, 1995; Rinaldi & Howe, 2003) and reflects shared environmental influence (O'Connor, 2002; Reiss et al., 2000). Furthermore, findings largely confirm evidence from previous conventional research that parent-child relations (monitoring, warmth, negativity) are related to adolescent alcohol use. The thesis also found that the salient part of the rearing environment for adolescent alcohol use is child-specific (e.g. Reiss et al., 1995). However, younger siblings experienced a protective effect. They showed lower alcohol use when their older brother or sister, but not they themselves, were exposed to marital discord ('sibling barricade'). Differences in siblings' drinking behaviour were related to differences in their experiences with parents: the sibling receiving the more beneficial treatment relative to his/her sibling showed less alcohol use than his/her brother or sister (e.g. Mekos et al., 1996). These associations suggest the experience of

nonshared effects of the family environment on siblings' alcohol use (e.g. Turkheimer & Waldron, 2000). In general, the findings support the importance of investigating individual adjustment within the interrelated network of family subsystems (Minuchin, 1985).

A third set of findings refers to the role of gender in these within-family processes. As reported in Chapter 6, distinct differences emerged regarding the susceptibility of male and female adolescents to parental and sibling alcohol use and alcohol use norms. Sibling gender (dis)similarity was found to be a moderator of associations of: a) older siblings' supply of alcohol and younger siblings' drinking behaviour and b) differential parenting and sibling differences in alcohol use (difference score model). Having siblings of the same or opposite sex, however, did not seem to matter to parents in terms of setting drinking norms or parenting behaviour, except for monitoring. These findings support previous findings on the transmission of alcohol use between parent and child and among siblings (e.g. McGue et al., 1996a; Weitzman & Wechsler, 2000). They also expand the current state of research on sibling gender combination as a context for parenting (e.g. Crouter et al., 1995; Mekos et al., 1996). Thus, the findings lend further support to the notion of gender being an important organising factor in dyadic, triadic and group interaction (see discussion in Chapter 1). Particularly in regard to alcohol use, socialisation processes seem affected by gender-specific expectations and values.

The last set of findings relates to more methodological issues. It was valuable to consider family member's individual perspectives on family processes. For example, adolescents' perception of parenting behaviour partially mediated the effects of parents' accounts of parent-child relations on adolescent alcohol use (Harold et al., 1997; Neiderhiser et al. 1998). This supports Bronfenbrenner's view of the salience of the individual's perception of his/her environment for development (1979). However, it questions the use of inter-respondent composites. Although praised as statistically reliable measures (by reducing rater bias), these composites may show low ecological validity by reflecting nobody's experience (Cox & Paley, 1997). In addition, this thesis also avoided sole reliance on single respondent information. By demonstrating similar associations through the use of parent and child reports in repeated analysis, the findings of this thesis prove reliable and credible (O'Connor, 2002; Sweeting, 2001).

With respect to the theoretical perspectives introduced in the first three chapters, this thesis provides, at large, support for previous research. Social learning principles can account for

similarity in drinking behaviour among family members, except for dyads of parent and daughter and sisters (as reported in Chapter 6). This finding also suggests that what appears a shared family level influence such as parental drinking may not influence all family members similarly. What did not emerge as clearly here as in American research was the magnitude of sibling influence as compared to that of parents. However, stronger same-generation relationships emerged also in an US sample as compared to an UK sample in a study on offending (Farrington, Jolliffe, Loeber, Stouthamer-Loeber, & Kalb, 2001). Thus, Rowe's (1994) claim of horizontal (within generation) cultural transmission of alcohol use being more salient than vertical (between generations) transmission of alcohol use could, in general, not be confirmed. This issue of lesser sibling influence is further discussed in the section on families and the cultural context of adolescent development later in this chapter.

Despite earlier claims of the lacking influence of the shared environment on sibling adjustment (Plomin & Daniels, 1987), shared environmental or family-level effects should not be dismissed (Reiss et al., 2000; Rutter, 2002). In this study, family-level influences appeared important for the non-alcohol-specific family environment in terms of associations between family subsystems (as reported in Chapter 7), supporting previous research (e.g. Reiss et al., 2000). However, in relation to proximal effects, differential experiences with parents have shown nonshared influences on siblings' alcohol use, also confirming previous reports (Reiss et al., 1995). More generally, it clearly proved beneficial to approach adolescent alcohol use from the wider family context of interrelated subsystems.

However, caution needs to be applied to the findings of this thesis. The non-genetic design of this study cannot with certainty exclude genetic factors in the parent-child transmission of alcohol use (see discussion in Chapter 1). Research utilising adoption designs demonstrated genetic influences on apparently social processes (e.g. the association of parental alcohol use and family functioning with adjustment of biological but not adoptive child; McGue et al., 1996a, b). Behaviour-genetic studies also have shown that children's genes are largely responsible for the association between parents' behaviour and child adjustment (Ge et al., 1996; Pike et al., 1996; Plomin, 1995; Plomin et al., 1994; Reiss et al., 2000), indicating gene-environment correlation. The implication is that ignoring these genetic influences may facilitate an over-estimation of environmental (i.e. parental) influences (O'Connor, 2002). Inflated effects have also been discussed regarding the association between differential parenting and adolescent outcome in

non-genetic research (Turkheimer & Waldron, 2000). Still, to test such complex models of interrelated multiple risk factors, as for example shown in Chapter 7, represents a challenge to behaviour-genetic research (O'Connor, 2002).

Overall, the thesis suggests that family influences are important for adolescent alcohol use in terms of both alcohol-specific and non-alcohol-specific family factors. Both parents and siblings exert influence. Furthermore, it is crucial to consider individual's alcohol use in the context of interrelated family subsystems. These findings from Chapters 6 and 7 are now discussed in relation to wider empirical evidence regarding: families as a source of influence; issues of adolescent-specific and family-wide influences; gender and family influence; and the family in relation to other contexts.

8.3. Families as a Source of Influences on Adolescent Alcohol Use

The findings of this thesis go some way towards redressing the research balance within the UK context. In British research family influences on adolescent alcohol use have received little attention (see discussion in Chapter 1). In studying youthful drinking behaviour the peer context has been favoured (Pavis et al., 1997; Harnett et al., 2000) which is also reflected in the focus of intervention programmes (see also discussion in section 8.7). There seems to be an unwritten assumption which came through in formal and informal discussions with participating families and during workshops and tutorials. According to this assumption, parents would not exert any influence and 'peer pressure' is the most important factor affecting adolescent use of alcohol, tobacco, and illicit drugs and general involvement in 'deviant' or 'risk-taking' behaviours. Earlier Scottish research provides a picture of the pessimistic view held by parents in relation to their relative influence on young people's alcohol consumption (Aitken, 1978; Aitken & Leathar, 1981). This strong focus on peer effects may be related to two issues. First, it may be a result of the methods used in research. For example, Pavis et al. (1997) used focus groups with adolescents to explore influences on alcohol use. With adolescents trying to establish an identity and autonomy, the free recall of parents as influential for their alcohol use appeared unlikely. Second, adolescents and parents may not be aware of family influence on young people's drinking behaviour, which may be of a more indirect nature. Thus, the salience of family influence as perceived by both adolescents and parents becomes an issue. American research is here very much at the forefront and shows strong empirical support for the role of parents in adolescent development (e.g. see review in Collins et al., 2000).

Family influence may not directly be related to youthful alcohol use and rather operate through the peer environment. However, research stresses the role of parents and siblings as antecedents and contributors to the selection process of the company young people keep (Brown, Mounts, Lamborn, & Steinberg, 1993; Collins et al., 2000; Conger & Rueter, 1996; Dishion, Patterson, Stoolmiller, & Skinner, 1991; Fletcher, Darling, Steinberg, & Dornbush, 1995; Fuligni & Eccles, 1993; Kandel, 1996; Mounts, 2005). In addition to these suggested mediated effects of parenting (e.g. Conger & Rueter, 1996; Kandel, 1996), others reported that parenting moderated peer effects (e.g. Dishion, Nelson, & Bullock, 2004; Galambos, Barber, & Almeida, 2003; Marshal & Chassin, 2000). In this thesis, peer alcohol use as a concurrent factor of adolescent drinking behaviour was taken into account in the formation of the alcohol involvement scale. This composite measure was then used in analyses involving non-alcohol-specific family factors. Thus, this thesis did not attempt to overemphasise parental influence to the cost of potential peer factors. Rather, the study tried to integrate some of these peer factors. However, even though family, and in particular parental, influence appears to be indirect, it must not be underestimated (Conger & Rueter, 1996; Kandel, 1996; Marshal & Chassin, 2000). Explicit support for such an argument comes from Collins et al.'s (2000) conclusion:

> *Any psychological snapshot taken during adolescence, when peers are undeniably an important force in children's lives, rightly should be viewed as the end of a long socialization that began early in childhood and most likely has its origins in the family* (p. 227).

In this respect, two aspects of family socialisation emerged as particularly important in relation to adolescent alcohol use: internalisation of behavioural norms and parental monitoring. Both norms (as reported in Chapter 6) and monitoring (as reported in Chapter 7) emerged as significant influences on adolescent alcohol use in this thesis and increased in importance from younger to older siblings. Considering such changes during adolescence as increased demands for autonomy and more time spent with peers (as discussed in Chapter 1), parents may have less opportunities to control their children's life directly. Thus parents have to rely on different practices.

An increasingly important aspect of the family environment concerns alcohol-related social norms. Internalised parental drinking norms provide guidance in unsupervised situations for

young people's alcohol consumption (e.g. Brody, Ge, Katz, & Arias, 2000) which become more prominent with age. However, there is very little evidence available on the development of alcohol use norms among children and young people. The work of Brody and colleagues (e.g. Brody et al., 2000), in terms of definition of norms, age groups, effects over time and moderating influences, proves an exception. By considering other research on children's acquisition of parental values and norms in the context of child-rearing experiences, parallel processes for alcohol use norms can be assumed. In respect to this thesis, this becomes particularly significant considering the role of parental norms for adolescent alcohol use (as reported in Chapter 6) and the divergence in parents' self-reports and adolescents' perceptions of them (as shown in Chapter 5). Such research also provides the link between alcohol-specific and non-alcohol-specific family factors that so far have been considered independently.

Internalising parental values and norms depends on parental discipline methods which contribute to the accurate perception of parental messages and their acceptance or rejection (see Grusec & Goodnow, 1994 for discussion). For example, a clear, consistent message that conveys the positive intention of the parent contributes to its accurate perception. In this thesis the association between parental self-reported alcohol norms and adolescents perception was only moderate (as reported in Chapter 5). This indicates that some factors may interfere with the accurate perception of parental norms. These may include: a lack of communication between parent and adolescent; cognitive processes in understanding and remembering the message; and possibly a rejection of parental norms. Factors associated with acceptance of parental norms concern the need of minimising the threats to adolescents' autonomy and perceived appropriateness of parental message (Grusec & Goodnow, 1994). Parents' use of warm and responsive parenting, instead of power assertion, seems to result in adolescents seeing the message as self-generated. Moreover, the message should match the developmental status of the adolescent; in this sample parents set stricter norms for their younger than their older children (as reported in Chapter 6). Rothbaum and Weisz (1994) also summarised that positive parent-child relationships aid adolescents' responsiveness to parental expectations, resulting in less involvement in activities parents disapprove of. Thus, it seems that parent-child relationships which allow for the growing autonomy of young people result in adolescents' acceptance of realistic drinking norms and age-appropriate alcohol use.

Such a process further involves renegotiations of norms in the face of the changing nature of adolescent drinking behaviour with increasing age. Parents may also not expect absolute compliance to set norms but consider degrees of acceptable and tolerable behaviour (Grusec, Goodnow, & Kuczynski, 2000). Longitudinal data are necessary for such an examination and could therefore not be conducted with this study. In addition, within families these processes may involve social comparison where children compare their own treatment with that of their siblings (Brody, 2004; Dunn & Plomin, 1990). Perceived fairness here may relate to drinking norms that reflect siblings' age differences.

Overall, this elaboration on parental messages overlaps with some suggestions of previous Scottish research regarding young people's alcohol consumption. Parents are suggested to set 'an example of responsible alcohol use' (Plant & Plant, 2002). Moreover, several authors encourage parents to proactively teach their youngsters the sensible use of alcohol in the controlled and safe setting of the home environment (Aitken, 1978; Aitken & Leathar, 1981; Davies & Stacey, 1972; Plant & Plant, 2002). These authors warn of an 'uncompromisingly prohibitive attitude' (Davies & Stacey, 1972) and over-controlling the young person (Aitken, 1978) which may result in excessive drinking outside parental control. Recent research has shown that adolescents' use of alcohol was sensible and moderate under parental supervision but turned excessive in unsupervised outdoor locations (Forsyth & Barnard, 2000).

Monitoring emerged in this study as another salient parenting measure. It is usually conceptualised as parental knowledge of their child's whereabouts outside direct adult supervision. However, for parents to gain this knowledge depends on a mutual trusting relationship, which allows for open communication between parent and child, but not on parental surveillance and control attempts (Kerr & Stattin, 2000; Kerr et al., 1999; see Chapter 1). Indeed, the significance of monitoring becomes evident in its demonstrated protective effect on a variety of problem/risk-taking behaviours, such as delinquency, drug use, and sexual behaviour (Aseltine, 1995; Biglan et al., 1990; Cottrell et al., 2003; Huebner & Howell, 2003; Kerr & Stattin, 2000; Kerr et al., 1999; Patterson & Stouthamer-Loeber, 1984). In addition, young people receiving lower monitoring are more like to have deviant peers (Aseltine, 1995; Chassin et al., 1993). For parents to be effective monitors of their adolescent offspring, their success builds upon a history of parent-child processes characterised by reciprocity, co-operation and co-ordination. As a result of a close, involved parent-child relationship, parents need to

have established channels of communication with their offspring. However, parental interest is not enough and effective monitoring also requires the child's willingness to share experiences with parents (see Pulkkinen's concept of 'child-centered guidance', 1982; quoted in Crouter, MacDermid, McHale, & Perry-Jenkins, 1990). Thus, the effectiveness of monitoring, similar to alcohol norms, depends on well functioning parent-child interaction.

A recent study by Dishion et al. (2004) illustrates the role of family management, combining monitoring, relationship quality and positive parenting, in relation to deviant peer influences. In families with antisocial boys, parents demonstrated a degradation of family management starting in early to mid-adolescence, partially as a response to their child's problem behaviour. This parental disengagement facilitated access to deviant peers and amplified peer influence on antisocial behaviour and marijuana use as compared to families not demonstrating such degradation. Thus, the authors concluded that parents' engagement with their adolescents may counterbalance some of the deviant peer influence.

In this study, too, adolescents who experienced higher levels of monitoring and parent-child warmth/support, indicative of parental involvement with their adolescent, showed lower alcohol involvement, combining measures of alcohol use and involvement with alcohol using peers. Conflictual and coercive interactions between parent and child were associated with increased alcohol involvement. Thus, the findings of this thesis converge with many other reports and highlight the importance of parent-child relations, particularly monitoring, for adolescent alcohol use and other adjustment measures (e.g. Dishion et al., 2004; Kerr & Stattin, 2000; Kerr et al., 1999).

In summary, responsible use of alcohol by young people is facilitated by norms and expectations of their parents and open communication embedded in a supportive family climate. These internalised standards for appropriate (drinking) behaviour will then provide guidance in extrafamilial settings which are returned to later in this chapter. Whereas the discussion so far focused on family influence in general and in relation to between-family research, one advantage of this thesis was its focus on within-family processes. In particular, a driving question was whether family factors identified across children from different families are also significant among siblings within families (Chapters 1 and 3). Thus this question regarding family factors operating on a family-wide or child-specific level will be addressed next.

8.4. Child-Specific and Family-Wide Influence of Family Factors and Adolescent Alcohol Use

Study designs of families with siblings allow for examination whether risk factors account for individual-specific and family-wide effects which are completely confounded in single-child studies (O'Connor, 2002). Distinguishing between these two types of within-family effects should help to understand sibling (dis)similarity. Consistent with previous findings (e.g. Hetherington et al., 1994), siblings in this study were also rather more dissimilar than alike in their alcohol consumption (as reported in Chapter 6). This thesis showed that differences in parenting were clearly related to adolescent alcohol use in both the covariance and the difference score model (Chapter 7), confirming previous reports (Feinberg et al., 2000; Mekos et al., 1996; Reiss et al., 1995). Thus, the findings demonstrated that the same dimensions of parent-child relations (parental monitoring, warmth/support, conflict/negativity) and exposure to marital discord are associated with individual differences in adolescent alcohol use within-families (as reported in Chapter 7) as has been shown across families (see discussion in Chapter 3).

In relation to within-family effects, the strongest predictor of adolescent alcohol involvement was parenting directed to this adolescent, which indicates child-specific effects. Although not all cross effects achieved significance, parenting directed to the sibling in relation to adolescent drinking tended to be in the opposite direction ('sibling barricade'). This paradoxical effect of an adolescent showing less alcohol use when his sibling is the target of inadequate parenting is considered further proof of nonshared environmental effects (Turkheimer & Waldron, 2000). Thus, the sibling receiving the more favourable parenting is protected whereas the other sibling is at increased risk for alcohol use. Particularly surprising here was the size of the significant cross-effect for older siblings' exposure to marital discord on younger siblings' alcohol use. This paradox cross-effect was stronger than being the direct recipient of monitoring, warmth or negativity (see report in Chapter 7). Whether this was due to the composite nature of this measure remains a question.

There is also the yet unresolved question of understanding the 'sibling barricade' effect (see also discussion in Chapter 3). Feinberg et al. (2000) discussed several alternatives in relation to adolescent depression which applied to adolescent drinking provide the following explanations. Siblings' may compare their treatment by parents and the one receiving the less effective

parenting may respond with increased alcohol use. In contrast, parents may experience one child as using alcohol excessively and therefore focus all their positive parenting efforts on the sibling ('parental salvaging'). A third alternative locates the dynamic within relations among siblings. Experiencing a sibling's drinking excesses may lead the adolescent to engage in alcohol use to a lesser degree ('sibling de-identification'; Schachter, 1985). Then both siblings' behaviour would evoke different parental responses. These possible explanations imply reciprocal processes rather than unidirectional ones for the association between differential parenting and sibling differences in alcohol use.

The cross-sectional data of this thesis do not allow disentangling the direction of influence but also cannot exclude more dynamic and reciprocal interactions between adolescents and their family environment. As mentioned earlier (see discussion in Chapter 3), parental behaviour needs to be considered, at least in part, as a reaction to adolescents' prior alcohol consumption and other behaviour (e.g. Stice & Barrera, 1995). Behaviour-genetic analysis has recently demonstrated genetic effects on apparently social processes (gene-environment correlation; e.g. Reiss et al., 2000; see O'Connor, 2002 for an overview). Individuals elicit certain responses from their environment through their characteristics ('reactive covariance') and seek out specific environments ('active covariance') (Plomin, DeFries, & Loehlin, 1977; Scarr & McCartney, 1983). Consequently, siblings may encounter different microenvironments which again have differentiating effects on their behaviour. These observations would also match with other proposals of transactional processes (Collins et al., 2000; Turkheimer & Waldron, 2000; Wachs, 1996) and highly specific organism-environment relations (e.g. Bronfenbrenner, 1979; Lerner & Bush-Rossnagel, 1981).

In conclusion, differential parental treatment occurs because parents respond to individual child characteristics such as siblings' ages, gender, and temperament (Henderson et al., 1996; Hoffman, 1991; Wachs, 1992, 1996). However, differential parenting does not inevitably result in sibling dissimilarity. In many instances, adolescents may actively make sense of such differences and differential parenting has often been perceived as justified (Kowal & Kramer, 1997; see also McHale & Pawletko, 1992). For example, when differential treatment is perceived to be fair, it is not related to negative parent-child relations (Kowal, Krull & Kramer, 2004). Other circumstances based on sibling differences required differential treatment: "some degree of differential parenting is optimal and might be expected to promote 'shared' level of

healthy social development in siblings" (O'Connor, 2002; p. 565) (see also Collins et al., 2000). This may particularly refer to age-related parental alcohol use norms and sanctions for undesirable forms of alcohol use investigated in the present study. Younger siblings will more likely consider their stricter experiences as compared to their older siblings as justified.

Nevertheless, risk factors for siblings need not differ. Even exposure to the same event (e.g. parental divorce) can result in differential sibling outcome depending on siblings' cognitive processing abilities and levels of vulnerability (Collins et al., 2000; Dunn & Plomin, 1990; Hoffman, 1991; O'Connor, 2002; Turkheimer & Waldron, 2000). The finding of differential vulnerability to parental alcohol use in this thesis (as reported in Chapter 6) may just reflect such an objectively shared source for differential outcome.

In relation to shared environmental effects, the original, though exaggerated, claim by some behaviour geneticists (e.g. Plomin & Daniels, 1987) that nonshared environmental influences outweigh shared ones needs to be rectified. Evidence in support of family-wide ('shared') effects is growing (see O'Connor, 2002; Rutter, 2002). One area that indicates shared family-level effects concerns the congruence of relationship quality across family subsystems. In this study marital distress increased coercive and inconsistent parenting for either sibling (as shown in Chapter 7) similarly to findings by Henderson et al. (1996). Thus, marital distress increased risk for both siblings (i.e. absolute levels of parenting but not differential parenting). This finding suggests that different risk processes operate between families as compared to those within families. Similarly, inconsistent, conflictual parenting was related to either sibling's increased perception of sibling conflict, whereas supportive and conflict-free parenting was associated with sibling warmth in both siblings' report. These findings of congruence in relationship quality confirm previous reports (Brody & Stoneman, 1992; Furman, 1995; Jodl et al., 1999; Rinaldi & Howe, 2003). More importantly, these findings indicate that shared environmental effects seem to regulate the climate among different family subsystems (Reiss et al., 2000).

Several approaches are in discussion to explain the similarity in quality among various family subsystems. Furman (1995) suggests a) family systems theory (Minuchin, 1974) and b) behavioural contagion effects. Because family members are part of an interrelated network and in constant reciprocal interaction, the quality of their relationships with each other is similarly

affected. According to behavioural contagion effects, behavioural experiences in one relationship are generalised to the interaction in other relationships (Bandura, 1977). One example would be the model of coercive interaction by Patterson and colleagues (Bank et al., 1996; see Chapter 3). But conflict could not only be carried from the parent-child to the sibling relationship, sibling conflict may lead to less parental affection and even more coercive disciplinary strategies (Furman, 1995). Overall, little seems to be known about the direction of effects between the different family subsystems and the actual mechanism linking them (Furman, 1995), which consequently demands further exploration.

In summary, this thesis has demonstrated that risk factors for adolescent alcohol use operate on a child-specific level within families. Differential parenting can partially explain sibling differences in alcohol use, though effects were modest at best. The findings also support family-wide effects. Marital distress is related to disrupted parenting of either child which in turn reduces the quality of both siblings' relations. It needs to be acknowledged that environmental processes do not impinge in the same manner on all siblings within a family (Rutter, 2002). Still, shared environmental influences remain important by regulating the climate within the larger family system.

Another issue, which emerged as important in this study, is the role of gender. Chapter 1 already pointed to the importance of gender in regard to family influence. Chapter 6 then provided findings which confirmed some reports but opposed other research findings. The following section explores the discrepancy in associated family factors for male and female adolescents' alcohol use found in this study within the wider research literature on gender and alcohol use.

8.5. The Issue of Gender for Alcohol Use

The lack of an association between female adolescents' drinking behaviour with either parent's alcohol use, attitudes and norms as well as the complete dissimilarity in alcohol use among sisters proposed a challenge for the discussion of the findings in Chapter 6. This was particularly challenging, when such associations had been established for male adolescents and in the absence of a gender difference in drinking behaviour (as reported in Chapter 5). To explain these gender differences it seems necessary to search for clues in the wider research on gender and alcohol. However, the discussion of *contextual* and *intrapersonal* factors here can only be selective and does not attempt comprehensiveness.

First, the family deserves a closer look due to its rather direct socialisation influence. Do parents have different expectations for and tolerance toward their sons and daughters' alcohol use? Despite a certain degree of convergence in female and male drinking patterns (see Nadeau, 1999; Plant & Plant, 1992), different cultural gender norms for alcohol consumption persist, particularly the double standard around female drinking (Nadeau, 1999; Plant, 1997; Robbins, 1989). Chapter 2 already summarised that parents themselves appeared to encourage male and female adolescents' drinking differentially (Sharp & Lowe, 1989). Particularly mothers seemed strongly disapproving of female drinking (Wilks & Callan, 1984). Greater disapproval of female alcohol consumption is already endorsed by young children, particularly female children, judging female drinkers more harshly than male drinkers (Fossey, 1993). This may explain those cases in this study where the drinking behaviour of mother-daughter and sister-sister pairs diverges.

Focusing more broadly on children's gender socialisation, alcohol consumption and intoxication appear to be more compatible with the gender role expectation for males and thus are viewed as more acceptable (see Huselid & Cooper, 1993; Windle, 1992). Males drink to enhance gratification within a male cultural context: "Alcohol is the masculine psychoactive substance of choice" (Nadeau, 1999, p. 305). Male adolescents demonstrate status and power and seek social bonding through alcohol use (Liu & Kaplan, 1996). Thus, parents may be less disapproving or even be encouraging by providing a model and opportunities for their male but not female children. Moreover, Maccoby (1990) argues that interaction with male peers fosters identification with fathers which may provide an explanation why similarity emerged among male but not female family members. Although peer influence reflects a further important direct influence on adolescent alcohol use, it may be an unlikely candidate for the found gender differences. Evidence so far suggests that peers are of equal significance for males and females (Barber, Bolitho & Bertrand, 1998; Conger & Rueter, 1996; Windle & Barnes, 1988).

In addition, intrapersonal factors may further contribute to our understanding of the found gender difference. For example, in relation to reasons for consuming alcohol, alleviating intrapersonal stress and depressive feelings has been particularly emphasised for female drinking. This "self-medication" has been reported for adolescent (Barber et al., 1998; Liu &

Kaplan, 1996; Windle & Barnes, 1988) and adult females (see Nadeau, 1999; Plant; 1997; Plant et al., 1999). It may, however, be less important in mid to late adolescence when heavy drinking appears normative (Bradizza, Reifman, & Barnes, 1999).

A further intrapersonal factor relates to gender identity. A conventional female gender identity is incompatible with drinking, thus leading to less alcohol involvement. In contrast, females with a more unconventional gender identity, endorsing more masculine attributes, should drink more (Huselid & Cooper, 1993). For example, Emslie, Hunt and Macintyre (2002) found that British women who scored high on masculinity drank 'heavily'. This research is in line with other studies showing that women who hold non-traditional attitudes (e.g. toward cohabitation and family) or are non-conformist with regard to traditional sex role stereotyping engage in greater alcohol consumption and other health risk behaviours (Davey, 1997; Lye & Waldon, 1998). Considering that the majority of females in this sample come from dual-earner homes where both parents are highly educated, many of the daughters may be very assertive and endorse rather unconventional/non-traditional gender attributes and role stereotypes. They may then represent the modern 'independent young women', adopting also more masculine-typed drinking styles. In the popular media this drinking behaviour is generally described as 'ladette' culture, reflecting 'the strong drinking image, being one of the lads' (Alcohol Concern, 2004). Although previously associated with young women in their post-school years, concerns are growing of 'ladette' behaviour becoming established at younger ages (Press Office, Lancaster University, 2004). This all seems to lend support to Freda Adler's observation made in the 1970s (1975; as quoted in Robbins, 1989) as still being valid in the present days.

> *The closer we look at women who are making their way in a man's world, the more they look like men in their profile of physical diseases, their psychological configurations, their criminal deviancies and their addictive patterns.* (p. 132)

In conclusion, there are many lines of research that may offer an explanation to the gender differences in this study's findings. However, they could not be followed up with the present data. Moreover, the mentioned aspects tackle only a small portion of the very complex processes involved in differences in male and female alcohol consumption and cannot be considered here in greater depths. In general, the findings stress that gender remains an important organising feature in relation to family influences on adolescent alcohol use. The family, however, is only one of the many contexts adolescents participate in or are influenced

by, as has been briefly outlined in Chapter 1. The following section pays attention to the family in relation to other contexts of adolescent development.

8.6. Families and Other Contexts of Adolescent Development

So far, the present findings have been discussed within the remits of other empirical and theoretical considerations on family influences. To consider families as systems has been useful in exploring the different elements of the family context (i.e. family subsystems). However, it represents a rather limited view on the context of adolescent development. Carrying a systems perspective further, Chapter 1 briefly introduced Bronfenbrenner's ecosystems theory (1979, 1986). According to this theory, the family is one of many interrelated microsystems within a nested interdependent, dynamic structure of ecological levels (micro-, meso-, exo-, macrosystem). As proposed, the family reflects only one influence on adolescent development and needs to be considered in relation to other microsystems ('mesosystem models') such as the peer group, school, and other membership groups of adolescents (e.g. sports clubs). In addition, the family may mediate influences of parents' peer groups (e.g. values), the neighbourhood/community, and the larger societal/cultural context (Bronfenbrenner, 1986; Collins et al., 2000; Leventhal & Brooks-Gunn, 2000). Here, as examples from the variety of other contexts, relations between the family and the peer group and cultural values regarding youthful alcohol consumption are discussed.

The peer group is usually considered as the greatest competitor to family influence (Harris, 1995; Rowe, 1994). A strong evidence base supports peer effects on adolescent alcohol use (see reviews in Hawkins et al., 1992; Petraitis et al., 1995). More appropriately, family and peer context need to be considered in their reciprocal interrelation regarding their effect on youthful alcohol consumption (Bronfenbrenner, 1986). In the link between adolescents' relationships with parents and peers emphasis is placed on their interaction as influencing involvement into problem behaviours (Steinberg & Morris, 2001). In Bronfenbrenner's terms potential risks emerge "when different microsystems endorse divergent values" (Muuss, 1996; p. 326). Parental attitudes and norms regarding adolescent drinking which are negative and disapproving may cause conflicts for the individual in a peer culture where consuming alcohol is considered normative. Here, it is important for parents to avoid making unrealistic demands on their children but to set age-appropriate guidelines for behaviour that match with the wider

developmental context of young people (see also section 8.3). However, parents need to communicate these behavioural guidelines and norms clearly so that they can fulfil their purpose. Plant and Miller (2001) conclude that parents' failure to communicate with their offspring about where and how time is spent may also result in failing "to establish reasonable boundaries, which are necessary to restrain and protect" (p. 515).

In addition, parental monitoring has also been suggested as protecting from negative peer influences. However, growing concern arises around the 'overprotection of young people's leisure', not allowing them to make experiences and some mistakes to learn from (Kloep & Hendry, 2002). Applied to alcohol use, this means, parents would not only allow the occasional one drink, but, in safe circumstances, wider experimentation of alcohol. Such experience will prepare the young person for responsible use of alcohol in the unprotected context of the peer group (e.g. judging one's tolerance) where drinking increasingly occurs (May, 1992; Sharp & Lowe, 1989). Thus, it is the divergence between parental and peer norms, values, and expectations that may underlie the risk for escalating alcohol use, not simply their independent contribution.

In turning to the macrosystem, the highest level in Bronfenbrenner's ecosystem (1986), the cultural context in this case, includes legal policies, general attitudes and media messages regarding young people and alcohol use. These influences affect the developing person indirectly through their microsystems (i.e. family, peer group). Nevertheless, these influences can have quite powerful implications for family processes. Thus, it is worthwhile to return to comparing the UK and USA situation in an attempt to explain the lack of greater sibling than parent effects discovered in this thesis as compared to American research, which largely provided the basis.

The British context provides its youth with a very different setting in terms of law, history, and drinking culture than the USA (Sharp & Lowe, 1989; see also Chapter 1). Light and moderate drinking among UK teenagers reflects *conventional* rather than deviant behaviour (May, 1992; Foxcroft & Lowe, 1991; Sharp & Lowe, 1989). Given that the majority of children were given their first drink by parents (Davies & Stacey, 1972; Plant & Plant, 1992; Sharp & Lowe, 1989), the role of older "deviant" siblings, as part of peer influence (Brook, Whiteman et al., 1990; Rowe & Gulley, 1992), may be less strong at this early stage. Sibling influence may gain more

importance once the younger adolescents move into the public sphere for alcohol use which tends to be after the age of 15 and then drinking levels increase (May, 1992; Sharp & Lowe, 1989). At that stage, it seems more likely that both siblings engage in the same activities and environments involving social drinking (e.g. clubs) (Rose et al., 1990). Then, reciprocity among siblings, as a foundation for shared experience (Reiss et al., 2000), may take further forms such as reciprocal offering of alcohol, thus mutually influencing drinking behaviour (Rose et al., 1990). The age range of younger siblings here may therefore not reflect the most vulnerable period of younger siblings' development to influences from their older brothers or sisters within the British context.

In contrast to their American counterparts, British parents tend to introduce their children to alcohol use. Thereafter, they seem to display some insecurity in relation to what are acceptable norms and standards for young people's drinking behaviour and how to influence alcohol use. There are inconsistent messages about drinking by minors, condoned to some degree by law but demonised with media scare messages about drinking excesses among youth and their related dangers[1]. Parents may feel confused by these inconsistent messages. Some of the participating parents of this study openly discussed that they relied on a 'traditional no-drink-before-18-approach'. Others tended to orientate themselves on a 'continental' approach (i.e. occasional provision of alcohol with meals as for instance in France). In addition, research has shown that parents rather tolerated whatever kind of alcohol use by their offspring as long as they do not experiment with drugs (Anderson & Sawyers, 1999). Overall, parents may feel much more confident in their role of socialising young people towards responsible alcohol use if there were clearer guidelines and standards of what is expected from them and their offspring.

In general, although the findings on family influences on adolescent alcohol use provided by this thesis are encouraging, they should not be viewed as independent of peer influence. They also need to be considered as bound to a very specific cultural context (e.g. values regarding drinking but also parent-child relationships). So far, the thesis' findings have already been discussed in relation to practical issues such as parents as socialising agents of alcohol use. However, more

[1] For example: "Sex, drugs and now binge drinking: How Britain's teens lead the world", Daily Mail, December 15, 2004; "Binge girls outdrink the boys", The Times, December 15, 2004. No published study on the portrayal of young people's drinking behaviour in the British media was found in search for this thesis. An American report acknowledges the exaggeration of youthful alcohol consumption by the media (Nichols & Good, 2004).

explicit implications for alcohol education and prevention can be drawn from these findings. This is set in relation to current British practice in the following section.

8.7. Implications for Alcohol Education and Prevention

The reduction of harmful drinking among young people is a key priority on the political agenda (Cabinett Office, The Prime Minister's Strategy Unit, 2004; DHSSPSNI, 2000; NI Executive, 2001; Scottish Executive, 2002; Waller, Naidoo, & Thom, 2002). As one of the major socialisation agents, the family context would appear as a prime target for intervention. To strengthen the case for the significance of family influence, this thesis' findings converge well with conclusions from systematic reviews of alcohol education and prevention. These reviews identified parental involvement in health education approaches and family-focused interventions as successful and effective (Foxcroft et al., 2002, 2003; Lister-Sharp, Chapman, Stewart-Brown, & Sowden, 1999). However, this empirical evidence stands in stark contrast to what is given practice within the UK.

In the UK, alcohol education and prevention usually takes only a small part in programmes focusing on drug use (e.g. Lowden & Powney, 1999). Overall, these school-based programmes provide knowledge and/or aim at peer relationships (e.g. skills programmes). The general emphasis on only later elements in the sequelae of the many influences on adolescent alcohol and other substance use (Collins et al., 2000; Petraitis et al., 1995) may explain the rather limited success of such school-based programmes. Systematic reviews of evaluation studies found weak evidence of effectiveness such as short-term knowledge increases at best, possibly changes in attitudes but none in behaviour (Foxcroft et al., 2002; Lister-Sharp et al., 1999; Ludbrook et al., 2001). British programmes largely represent diluted versions of high integrity programmes evaluated elsewhere (Alcohol Concern, 2002). They are then further compromised by insufficiently designed evaluations (Ludbrook et al., 2001; Waller et al., 2002). However, multifaceted programmes (e.g. class-room programmes with family/community involvement) delivered in school may be effective (Lister-Sharp et al., 1999).

A more effective category of programmes is family-based intervention. Such theoretically and empirically based American and Australian programmes try to affect family relationships, communication, discipline styles, and norm setting for acceptable behaviours (Gregg & Toumbourou, 2002; Lochman & van den Steenhoven, 2002; Loveland-Cherry, Ross, &

Kaufman, 1999; Spoth, Redmond, & Lepper, 1999; Toumbourou & Greggs, 2002; Williams, Perry, Farbakhsh, & Veblen-Mortensen, 1999). These components also reflect the family factors that have been successfully linked with adolescent alcohol use in this thesis (as reported in Chapters 6 and 7). One of the most successful programmes has been the *Strengthening Families Program* (SFP). The SFP teaches parents and children to clarify expectations, to use appropriate discipline, to manage strong emotions, and effective communication (Spoth et al., 1999). By demonstrating such a rare intervention effect as increasing divergence between treatment and control group over a 4-year period (Spoth, Redmond, & Sin, 2001), the SFP remains a highly recommendable approach (Foxcroft et al., 2002; 2003).

Reviews also acknowledged long-term effects by other programmes but methodological restrictions (e.g. high fidelity participants only: Botvin, Baker, & Dusenbury, 1995; quoted in Foxcroft et al, 2002) hampered their overall effectiveness and suitability. Harm minimisation approaches such as the Australian *School Health and Alcohol Harm Reduction Project* (SHAHRP) may offer effective alternatives. This programme teaches young people to identify and deal with high-risk drinking situations (McBride, Midford, Farringdon, & Phillips, 2000). Similar to SFP, SHAHRP also showed increasing intervention effects on drinking behaviour over time (McBride, 2002).

However, what appears as a great advantage of interventions focused on parents and a target adolescent is that effects may generalise to other family members, reflecting family-level (i.e. shared) effects (O'Connor, 2002). Seitz and Apfel (1994) found a 'spill-over' effect of a parenting programme on school outcome not just for the target child but also on his sisters and brothers, some of them not even born at the time of the intervention. Moreover, contagion effects also seem to operate between families as an Australian parent-education programme showed. Best friend's positive family relationships also reduced later substance use by respondents whose families did not participate in the intervention (Toumbourou & Greggs, 2002). In addition, family influences have been established for a variety of problem behaviours (e.g. delinquency, depression, sexual activity: e.g. Henderson et al., 1996; Hetherington et al., 1999). Thus improving family relationships and climate may well have effects beyond adolescent alcohol use. This all seems to support strongly the idea of implementing programmes for young people and their families in preventing alcohol misuse.

Despite all this evidence from family-focused intervention itself, this thesis can add further significant aspects of family life worthwhile to be included. These aspects reflect raising parental awareness of the role of older siblings as well as of sibling comparison processes within families. This thesis has shown that differences in parental treatment operate as within-family risk factors. Additionally, older siblings in particular may represent further models for use as well as provide active encouragement through supply (e.g. Ary et al., 1993; D'Amico & Fromme, 1997).

In conclusion, this thesis lends further support to consider family factors in alcohol education and prevention and converges with findings from both aetiological and intervention research. Moreover, all this evidence clearly substantiates Foxcroft and Lowe's call that "[a]lcohol education should therefore, by default, be family-based and family-centred" (1997, p. 227). The family remains an important context for young people's development, despite other extrafamilial contexts (e.g. peers) taking further hold in their life. Consuming alcohol remains for the majority of youth an experience, either observed or taken part in, which is made within the private sphere of the family for the first time.

8.8. Limitations of the Thesis and Implications for Further Research

Limitations in relation to the specific analyses have already been discussed in the relevant result chapters (Chapters 6 and 7) and will not be reiterated here. At this point, a more general view of the limitations of this investigation is taken, acknowledging broader, more general issues of design and generalisability. Thereafter, and partially building upon the thesis' limitations, suggestions for further research are presented.

The *cross-sectional* design of the study limits any conclusions about causality in the investigated associations. Parents and children are in constant dynamic interaction (Belsky, 1984; Cox & Paley, 1997; Reiss et al., 2000) which could not be portrayed with the present data. Reverse directions of effects between family subsystems as compared to the ones examined here have been demonstrated before (Belsky, 1984; Cummings & Davies, 2002; Furman, 1995; O'Connor, 2002), reflecting bidirectional associations. Research has not just shown that children influence parenting behaviour (Conger & Conger, 1994; Stice & Barrera, 1995; Stattin & Kerr, 2005); parents may also renegotiate norms for behaviour (Grusec et al., 2000). Even parental alcohol use may be a response to increased stress from higher levels of conflict experienced in families

with adolescents (Dekovič, 1999; Steinberg, 2002). All these possible alternative processes could not be disentangled with cross-sectional data and would at least require longitudinal information, providing a sequential order of the various aspects (O'Connor, 2002; Reiss et al., 2000). Moreover, empirical evidence for differential parenting has repeatedly been demonstrated in terms of its concurrent effects (Daniels & Plomin, 1985; Feinberg et al., 2000; Mekos et al., 1996; Monahan et al., 1993; Reiss et al., 1995; Tejerina-Allen et al., 1994). For later adolescent adjustment and when controlled for absolute level of parenting, however, differential parental treatment seems to lack this importance (Hetherington et al., 1999; Tamrouti-Makkink et al., 2003).

The main limitations based on the *sample* refer to *sample size* (i.e. statistical power) and *representativeness* (i.e. generalisability). An overall sample size of 116 families did not permit testing of complex models. Regression models require at a minimum 100 subjects or alternatively at least 20 subjects per predictor variable (Miles & Shevlin, 2001). Restriction due to sample size became particularly evident when investigating subgroups of sibling gender similarity (e.g. the 'sibling effects' models in Chapter 6) or gender combinations (e.g. alcohol use between mother and older female adolescents in Chapter 6). More importantly, it prevented the further examination of interaction effects for subgroups such as brothers in regard to 'sibling effects' models or interaction between parental and older brother's alcohol use in relation to younger brother's consumption. With particular reference to investigated interrelations between family subsystems in Chapter 7, structural equation modelling would have represented a more sophisticated statistical approach (e.g. Jodl et al., 1999; Mekos et al., 1996; Reiss et al., 1995). However, the sample size did not permit it.

There are several aspects related to the representativeness of the participating families and therefore to the generalisability of the findings. Based on the recruitment strategy, a non-random sample was recruited. Both schools and, in the next step, families selected themselves into the study. The snowballing approach further aided recruitment within similar social groups of families. Requiring consent from four family members made it more likely that families not experiencing serious problems were sampled. In addition, data collection in the participants' homes may have led to under-reporting of alcohol use particularly among the adolescents as has been discussed in Chapter 5 (e.g. deVries et al. 1999). However, because associations between family factors and adolescent alcohol use were the focus and not the prevalence and level of

drinking, the findings may be rather conservative. They may even indicate potentially stronger relationships in more problem-prone families. Therefore, and rather unsurprisingly, it was shown in both Chapters 4 and 5 that the recruited families represent a positive selection in terms of socio-economic and educational background as well as regards their alcohol and other substance use.

Furthermore, the intact nature of the families does not permit application of the present findings to single parent homes or stepfamilies. Despite many similarities between stable stepfamilies (married for seven or more years) and intact families (Hetherington et al., 1999), differences persist. These particularly relate to parental behaviour and biological 'ownness' of a child or when families were more recently reconstituted (Hetherington & Clingempeel, 1992; Hetherington et al., 1999). With families being drawn from a community sample, the findings cannot be applied to homes with alcohol-dependent family members.

In addition, further aspects of families may limit the findings. Considering family size and variation in birth order among participants (as reported in Chapter 4), other siblings than the ones sampled may exert influence and serve comparisons. Therefore further siblings may contribute to variation among sibling alcohol use. Large age gaps between siblings could have been prevented by setting the criterion of siblings being within four years of age (e.g. Conger et al., 1994; Reiss et al., 1994). Yet, this may have further constrained the recruitment process. Furthermore, conventional Scottish research suggests that family influences on adolescent drinking behaviour appears to be stronger in rural than in urban populations (Glendinning, 1998 in comparison with Shucksmith et al., 1997). However, the present study focused on within-family comparison processes. So far there is no evidence that siblings living in rural settings compare themselves with one another more or less than their counterparts in urban residences.

Despite and because of these limitations several important issues have arisen or been left unresolved. They provide the background for recommendations regarding further research. At the simplest level, these suggestions include replication of the present findings by considering the above limitations. According to Wachs (1992), replicating patterns of environment-development specificity is crucial in ruling out of having found only random relations. A much larger, more diverse sample would allow for replicating findings as well as for testing of specific

interactions between family members, which was not possible in this thesis (e.g. interaction between parental and sibling alcohol use, subgroups of gender composition).

More specifically, further research should also focus on normative and non-normative family contexts (e.g. families with and without alcohol abusing family members/mental health problems, different types of family structures) to investigate commonalities and differences in processes between these contexts. Such research should allow for dynamic relationships, include child effects and therefore be longitudinal which would greatly assist our understanding of risk mechanisms and not only risk factors (see Bronfenbrenner & Crouter, 1983 for person-process-context models; O'Connor & Rutter, 1994; Rutter, 1990). Surely, such an approach is not only useful in relation to adolescent alcohol use but also regarding other measures of developmental adjustment.

Alcohol use is a highly 'gender-dependent' phenomenon in terms of acceptable behaviour, attitudes, values, consequences, and sanctions. Although the inclusion of sibling gender similarity certainly proved valuable in this thesis, it did not resolve many issues surrounding gender and alcohol use in the family context. The small sample size prevented the more detailed exploration of the various specific combinations of sibling gender. Most of the research on families with sons and daughters comes from between-family comparisons based on which inferences are made to within-family dynamics (see Russel & Saebel, 1997 for discussion). Maccoby (1990) stressed that "[s]ex differences emerge primarily in social situations, and their nature varies with the gender composition of dyads and groups" (p. 513). Research into alcohol use and its related attitudes, norms and consequences in the family would not only involve gender combinations of dyads (e.g. parent-child) but the wider family context (e.g. sex of a sibling in relation to a parent-child dyad). To complicate matters further, sex and gender (masculinity, femininity, androgynity) need to be distinguished because they do not correspond in an identical way (but were used synonymously in this thesis). An excellent example here is the research by McHale and colleagues (e.g. Crouter et al., 1993; 1995; McHale et al., 1999; McHale & Crouter, 1996). However, their work is restricted to child-rearing issues (e.g. chores, involvement with child) and largely undertaken with preadolescents. Thus, to apply and expand their approach to alcohol and gender issues within the family would be a fruitful avenue.

A further opportunity for research is offered by a *pattern-centred approach*, where constellations (profiles) of individual and/or family characteristics affecting outcomes are examined (Magnusson & Bergman, 1988). This contrasts with the here employed variable-centred approach where interrelations between single variables were investigated (as in most studies cited in this thesis). The advantage of a pattern-centred approach lies in providing greater richness of the data (Galambos & Leadbeater, 2000). In relation to the family context of siblings, this suggests to examine the behaviours of or relationships with mother and father synergistically in relation to adolescent alcohol use and other outcome measures. Such an approach may better reflect that mother and father are part of an interrelated network of family subsystems instead of the here presented separate analysis. For example, McHale et al. (1995) examined the pattern of mothers' and fathers' differential treatment (in same or opposite direction) in relation to child outcome. Moreover, relationship quality in one subsystem (father-child, sibling relationship) may moderate the effect of another subsystem (mother-child) on adolescent adjustment (e.g. Tamrouti-Makkink, Dubas, van Aken, & Gerris, 2002). In addition, the interplay of differential warmth and differential negativity, either within one parent or across both parents, also represents a possible pattern for investigation. Such an approach would allow the identification of within-family processes that are compensatory or multiplicative regarding risk.

Finally, after repeated pointing out that families only represent one, although crucial, context of adolescent development, their influence needs to be explored in relation to further contexts (i.e. microsystems and exosystems) such as peer groups and neighbourhoods (see also 'mesosystem/exosystem models' in Bronfenbrenner, 1986). Again, patterns of influence and the interplay of different contexts will contribute to our understanding of processes leading to adolescent alcohol misuse, particularly when using longitudinal designs. Considering adolescent alcohol use in relation to other adjustment measures may thereby assist a more comprehensive understanding of adolescent development.

8.9. Summary and Conclusion

This thesis reveals the family to be an important context for alcohol use among adolescent siblings in Scotland. It was able to replicate largely American findings on intrafamilial influences in families with siblings in relation to adolescent alcohol use. Its application to the Scottish context has been novel in many regards. The study demonstrated a certain degree of intrafamilial similarity in alcohol consumption. This family resemblance in alcohol use seems to be promoted by modelling of behaviour, drinking norms, and, especially among the siblings, active provision of alcohol. In addition, resemblance was also shown in the quality of various family subsystems: the marital, parent-child, and sibling relationships, reflecting family-level effects. In contrast, siblings are also dissimilar in their drinking behaviour which was associated with differences in their rearing environment. As shown with many other adjustment measures, individual adolescent's alcohol use was best predicted by the part of the intrafamilial environment specific, unique to them. Moreover, gender, particularly gender composition of family units, emerged as a salient aspect in these within-family processes but no detailed picture could be provided.

Overall, approaching families as complex networks of interrelated family members (Minuchin, 1985) and detailed attention to specific subsystems proved valuable in exploring similarities and differences in drinking behaviour among siblings. Social learning principles (Bandura, 1977) were useful in explaining resemblance among family members. The differential parenting approach aided the understanding of siblings' differential alcohol use. Moreover, the thesis confirmed previous research that demonstrated the importance of exploring the wider family context in relation to individual adjustment (e.g. Hetherington et al., 1999; Minuchin, 1985). With such a strong focus on environmental influences, the effect of genetic factors could not be ruled out nor be specified in this thesis.

In conclusion, this thesis emphasised and confirmed family influences on adolescent alcohol use. The study has illuminated the role of siblings in regard to adolescent alcohol use. Specifically, it stressed the function of siblings as role models and active advocates (through providing alcohol) for alcohol consumption. Additionally, the findings lend further support to the significant role parents play in the life of their adolescent children. Over decades this role has been critically examined within the areas of alcohol use and other measures of developmental outcome. Grusec (2005) has recently poignantly described parenting as a tremendous balancing act which

'depends on parents' goals, the behaviour of interest and characteristics of the child'. Thus, the reader should be deterred from a negative interpretation of these findings in form of 'blaming parents' for their offspring's alcohol use. Rather, a more positive position should be endorsed to strengthen, and not to undermine, parents' role in the life of adolescents. Here, particular attention should be paid to the bidirectional dynamics within family relationships. This will account for the contribution of both parents and adolescents to family processes and their consequent influence on youthful alcohol use. On a more practical level, the findings clearly strengthen the case for the family context as a valuable target for effective alcohol misuse prevention.

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APPENDIX A

DOCUMENTS OF THE RECRUITMENT PHASE

Letter to Schools

Letter for Parents and Reply Slip

Media Announcement

Flyer Targeting Parents

Diana Gossrau, Dipl.-Psych.
Research Psychologist

Tel: (...) 44 131 536 6192
Fax: (...)44 131 536 6215

ALCOHOL & HEALTH RESEARCH CENTRE

City Hospital
Greenbank Drive
Edinburgh EH10 5SB
Scotland, UK

Head Teacher,
School,
Edinburgh.

Autumn/Winter 2000

Dear [head teacher],

I am writing regarding help with a research project. The project *Families and Drinking* is a co-operation between the AHRC and the University of Edinburgh. The City of Edinburgh Council Education Department has agreed for me to contact local schools (Please see copy enclosed). First, I would like to provide a few details of the study for which I am seeking some help.

I am a psychologist working on a three-year project (PhD) to examine the messages that parents and children give each other about drinking. This work, which is funded by the Alcohol Education and Research Council, involves me making contact with families with two or more children. I have made a good start, but I now need to recruit some more people for this study. To be eligible, I need families with one child aged 11-14 and a second one aged 15-19. I should be extremely grateful if you or your colleagues could help me to recruit some more people for this study. The work requires that I visit the participating families. The plan is for each of the parents and their two 'eligible' children to fill in confidential questionnaires, while I am there to help, explain, and advise. This means that each family could get through this in little more than an hour. I enclose a copy of a draft letter to prospective study recruits explaining the outline of this exercise.

Please let me suggest how the issue could be approached. In some schools I handed out letters for parents to children matching my age requirements at school assemblies. Parents were asked for their participation and to return a reply slip. A more fruitful approach was that of schools where school files were searched for siblings. Letters were sent to the parents directly, asking them for their participation and to return a reply slip. Both ways have proven to work with the second one being more successful.

I would be very grateful for a chance to meet you to discuss this further I shall, of course, be happy to provide you with any details that you may require.

Best wishes,

Yours sincerely,

Diana Gossrau.

Diana Gossrau, Dipl.-Psych.
Research Psychologist

ALCOHOL & HEALTH
RESEARCH CENTRE

Tel: (...) 44 131 536 6192
Fax: (...)44 131 536 6215

City Hospital
Greenbank Drive
Edinburgh EH10 5SB
Scotland, UK

Autumn/Winter 2000

Dear Parent,

Families and Drinking

I am writing to ask for your help with a research project. This aims to investigate the messages parents and their teenage children give each other about drinking and other behaviours. I am not interested in drinking problems but in 'normal' drinking as it occurs in most families. I am contacting teenagers through local schools. The families who have taken part in this study so far tell me that they have found it both interesting and enjoyable.

[child's school] is one of the schools supporting this study by providing me with access to their pupils.

I am seeking parents who have two (or more) children. One of these children should be aged 11-14 years and the second should be aged 15-18 years. The study simply involves parents and children in these age groups filling in questionnaires at home. These are anonymous and confidential. This can be done in a single session lasting no more than 45 minutes.

Would you and your family like to take part? I would really value your help. I should also be happy to visit you or to discuss this at your convenience. **Please fill in the slip enclosed and return it to [child's school]. If you would like to talk about this, or would like more details, please call me at my home number (0131-225 5745) between 7 and 10 PM any evening.**

Best wishes,

Yours sincerely,

Diana Gossrau.

REPLY SLIP FOR PARENTS

My family and I would like to participate in the study ***Families and Drinking***. (Please tick a box.)

☐ YES

☐ NO

Name of Parent:

_____

Phone Number: _____

Date: _____

Signature:

_____

Diana Gossrau, Dipl.-Psych.
Research Psychologist

ALCOHOL & HEALTH
RESEARCH CENTRE

Tel: (...) 44 131 536 6192
Fax: (...)44 131 536 6215

City Hospital
Greenbank Drive
Edinburgh EH10 5SB
Scotland, UK

[To be announced in printed press]

The Family Alcohol Project

The three-year project examines the messages that parents and children give each other about drinking. This work, which is funded by the Alcohol Education and Research Council, involves making contact with families with two or more children. To be eligible, families with one child aged 11-14 and a second one aged 15-18 are needed. The work requires visiting the participating families. The plan is for each of the parents and their two 'eligible' children to fill in confidential questionnaires, while I am there to help, explain, and advise.

The focus is on normal drinking as it occurs in most families, not on alcohol abuse. Initiating drinking and establishing a drinking pattern is seen as part of normative adolescent development. My particular interest is in how the four family members view each other and how they experience their relationships. A further issue is the gender composition of sibling pairs and whether this has an influence on interactions within families. For example, are there differences between families with two daughters, two sons, or mixed gender siblings regarding the setting of norms for drinking alcohol?

If further information is necessary, please contact the above phone number or 225 5745.

Martin Plant PhD
Director

Tel (...) 44 131 536 6192
(...) 44 131 536 6216 (Direct)
Mobile: 07711 318 298
Fax (...) 44 131 536 6215
e-mail: mplant.ahrc@onet.co.uk

ALCOHOL & HEALTH
RESEARCH CENTRE

City Hospital
Greenbank Drive
Edinburgh EH10 5SB
Scotland, UK

DO YOU ENJOY A DRINK?

If you do, that's great. ***The Family Alcohol Project*** is exploring the messages that parents and their teenage children give each other about drinking.

If you have a family with at least:

One child aged 11-14 years and another aged 15-19 years, then we need your help.

Please contact either myself or Diana Gossrau on the above daytime numbers or on 225 5745 (evenings and weekends). We shall be every glad to hear from you.

Best wishes,

Yours sincerely,

Dr Martin Plant
Project Supervisor.

APPENDIX B

MATERIALS OF DATA COLLECTION PHASE

Interview Schedule – Family Demographics

Questionnaire – Parent Version

Questionnaire – Adolescent Version

Instructions for Questionnaire

Interview Questionnaire: Family Demographics

1. Who is living in your household?

	Name of family member	Sex		Age in Years	Religious Affiliation	Birth child of			
						Mother		Father	
		Male	*Female*			*Yes*	*No*	*Yes*	*No*
Mother		1	2						
Father		1	2						
Child 1		1	2			1	2	1	2
Child 2		1	2			1	2	1	2
Child 3		1	2			1	2	1	2
Child 4		1	2			1	2	1	2
Child 5		1	2			1	2	1	2

Coding for categories of religious affiliation:

Roman Catholic	1
Church of Scotland	2
Free Church of Scotland	3
Presbyterian	4
Baptist	5
Agnostic	6
Athiest	7
Other, please specify:	

_____

2. What is your civil status?

Married	1
Single and cohabiting	2
Separated and cohabiting	3
Widowed and cohabiting	4
Divorced and cohabiting	5
Neither married nor cohabiting	6

3. How long have you been married/cohabiting?

_____ **years**

CHILDREN ONLY:

7. What type of school do your children attend?

Child	Name of child	Name of school	School type	
			State	Public
1.			1	2
2.			1	2
3.			1	2
4.			1	2
5.			1	2

CODE: F _ _ _ _ _ _ _

Questionnaire:

Parent Version

Drinking Patterns and Other Risk-Taking Behaviours: Relationships Between Siblings and Their Parents

Alcohol and Health Research Centre
City Hospital
Greenbank Drive
Edinburgh EH10 5SB

In cooperation with

University of Edinburgh

First, some details about you

1. What is your sex?

Male 1 Female 2

2. When were you born?

Month ☐☐ Year ☐☐

In this section the questions are about your use of tobacco, alcohol, and drugs

3. Do you smoke?

Yes	1
No	2

IF YES:

What do you mainly smoke?

Cigarettes	1
Cigars	2
Pipe	3
Snuff	4

4. How much do you smoke?

Cigarettes (ready made) PER DAY

Less than 1 per day	1
1-5 cigarettes per day ..	2
6-10 cigarettes per day	3
11-20 cigarettes	4
More than 20 cigarettes	5

Tobacco (pipe, "rollies") PER WEEK

Less than half oz	1
Half oz-1oz	2
Over 1oz-3oz	3
Over 3oz-6oz	4
Over 6oz	5

Tobacco: small pack=12,5g=1/2oz; medium pack=25g=1oz!!

Cigars PER DAY

Less than 1 cigar	1
1-2 cigars per day	2
3-5 cigars per day	3
6-9 cigars per day	4
10 or more cigars	5

Specify kind of cigars:

_____

5. Do you drink alcohol?

Yes	1
No	2

IF NO:

Please tell me why you don't drink alcohol:

IF YES:

6. How often do you drink alcohol?

Almost every day	7
3-4 times a week	6
1-2 times a week	5
About once a fortnight	4
Once a month/2 months	3
Once every 3 or 4 months	2
About twice a year or less	1

7. When did you last have a drink? Please write in detail.

Example: 1 single malt whiskey, 1 can of Old Peculiar, half pint of Carlsberg Special, quarter of bottle of port

---

Total consumption: UNITS_____ (OFFICE USE ONLY)

8. Sometimes drinking alcohol affects your life negatively. How often have the followin things happened to you?

		Never	*Seldom*	*Sometimes*	*Often*	*All t*
1.	How often has drinking caused any trouble or problems for you?	1	2	3	4	
2.	How often do you think you drink too much for your own good?	1	2	3	4	
3.	How often would you say you drink alcohol to help you face your problems?	1	2	3	4	

9. Have you ever used any of the following drugs?

		No	*Yes*
1.	Tranquillizers or sedatives (without a doctor's prescription)	1	2
2.	Cannabis (marijuana, hashish, blow, pot, dope, grass)	1	2
3.	Amphetamines (pep pills, speed)	1	2
4.	LSD or other hallucinogen	1	2
5.	Cocaine or crack	1	2
6.	Heroin (other than by injecting)	1	2
7.	Ecstasy (E)	1	2
8.	Magic mushrooms	1	2
9.	Have you injected drugs – what was it: heroin, cocaine, amphetamine	1	2
10.	Alcohol together with pills	1	2
11.	Alcohol and cannabis at the same time	1	2
12.	Anabolic steroids	1	2

IF YOU HAVE USED CANNABIS:

10. When did you last use cannabis (marijuana, hashish, blow, pot, dope, grass)?

Quit	1
Used it, but not in the last 6 months ...	2
In the last 6 months	3
In the last month	4
In the last few days	5

The next questions are about your attitudes to the use of alcohol, tobacco, and drugs

11. Individuals differ in whether or not they disapprove of people doing certain things. DO YOU DISAPPROVE of <u>young people</u> doing each of the following?

		Don't disapprove	*Disapprove*	*Disapprove strongly*	*Don't know*
1.	Smoking cigarettes occasionally	1	2	3	4
2.	Smoking one or more packs of cigarettes per day	1	2	3	4
3.	Drinking occasionally	1	2	3	4
4.	Having one or two drinks several times a week	1	2	3	4
5.	Getting drunk once a week	1	2	3	4
6.	Trying cannabis once or twice	1	2	3	4
7.	Smoking cannabis occasionally	1	2	3	4
8.	Smoking cannabis frequently	1	2	3	4
9.	Trying LSD or other hallucinogen once or twice	1	2	3	4
10.	Trying tranquillizers or sedatives (without a doctor's prescription) once or twice	1	2	3	4
11.	Trying amphetamines once or twice	1	2	3	4
12.	Trying cocaine or crack once or twice	1	2	3	4
13.	Trying ecstasy once or twice	1	2	3	4
14.	Trying inhalants (glue etc.) once or twice	1	2	3	4

12. **Do you agree or disagree with the following statements? Please answer first for _____ (Child 1).**

	Child 1 _____	*Agree strongly*	*Agree somewhat*	*Neither agree nor disagree*	*Disagree somewhat*
1.	I don't want my child to drink alcohol.	1	2	3	4
2.	I prefer my child to drink with me and my partner if he/she wants to experience it than to learn about it elsewhere.	1	2	3	4
3.	I don't mind my child having a drink at a family party.	1	2	3	4
4.	I think it is okay for my child to experiment with alcohol (drinking occasionally, not getting drunk).	1	2	3	4
5.	I want my child to use alcohol carefully and not let it interfere with schoolwork.	1	2	3	4
6.	I don't mind my child having a few beers at a friend's house after school.	1	2	3	4
7.	I don't mind my child having a few drinks of spirits at a party at a friend's house.	1	2	3	4
8.	I don't mind my child getting drunk at a family party.	1	2	3	4
9.	It is part of growing up to get drunk when an adolescent is out with his/her friends.	1	2	3	4
10.	I don't want my child to smoke cigarettes.	1	2	3	4
11.	Smoking cigarettes occasionally is okay for my child.	1	2	3	4
12.	I don't want my child to use cannabis.	1	2	3	4
13.	I don't mind my child trying to use cannabis, but don't like him/her to use it frequently.	1	2	3	4
14.	I don't mind my child using cannabis even frequently as long as he/she doesn't use any other drug.	1	2	3	4
15.	I don't want my child to use drugs.	1	2	3	4

13. **Are you aware of _____ (Child 1) doing any of the following things?**

		Never	*Seldom*	*Sometimes*	*Often*	*Do*
1.	Smoke cigarettes	1	2	3	4	
2.	Drink alcoholic beverages (beer, wine, or spirits)	1	2	3	4	
3.	Get drunk	1	2	3	4	
4.	Smoke cannabis	1	2	3	4	
5.	Take tranquillizers or sedatives (without a doctor's prescription)	1	2	3	4	
6.	Take ecstasy	1	2	3	4	
	Take other drugs than the above, Please specify:					
7.	_____	1	2	3	4	
8.	_____	1	2	3	4	

14. Now, please answer the same questions only for _____(Child 2).

	Child 2 _____	*Agree strongly*	*Agree somewhat*	*Neither agree nor disagree*	*Disagree somewhat*	*Strongly disagree*
1.	I don't want my child to drink alcohol.	1	2	3	4	5
2.	I prefer my child to drink with me and my partner if he/she wants to experience it than to learn about it elsewhere.	1	2	3	4	5
3.	I don't mind my child having a drink at a family party.	1	2	3	4	5
4.	I think it is okay for my child to experiment with alcohol (drinking occasionally, not getting drunk).	1	2	3	4	5
5.	I want my child to use alcohol carefully and not let it interfere with schoolwork.	1	2	3	4	5
6.	I don't mind my child having a few beers at a friend's house after school.	1	2	3	4	5
7.	I don't mind my child having a few drinks of spirits at a party at a friend's house.	1	2	3	4	5
8.	I don't mind my child getting drunk at a family party.	1	2	3	4	5
9.	It is part of growing up to get drunk when an adolescent is out with his/her friends.	1	2	3	4	5
10.	I don't want my child to smoke cigarettes.	1	2	3	4	5
11.	Smoking cigarettes occasionally is okay for my child.	1	2	3	4	5
12.	I don't want my child to use cannabis.	1	2	3	4	5
13.	I don't mind my child trying to use cannabis, but don't like him/her to use it frequently.	1	2	3	4	5
14.	I don't mind my child using cannabis even frequently as long as he/she doesn't use any other drug.	1	2	3	4	5
15.	I don't want my child to use drugs.	1	2	3	4	5

15. Are you aware of _____ (Child 2) doing any of the following things?

		Never	*Seldom*	*Sometimes*	*Often*	*Don't know*
1.	Smoke cigarettes	1	2	3	4	5
2.	Drink alcoholic beverages (beer, wine, or spirits)	1	2	3	4	5
3.	Get drunk	1	2	3	4	5
4.	Smoke cannabis	1	2	3	4	5
5.	Take tranquillizers or sedatives (without a doctor's prescription)	1	2	3	4	5
6.	Take ecstasy	1	2	3	4	5
	Take other drugs than the above, Please specify:					
7.	_____	1	2	3	4	5
8.	_____	1	2	3	4	5

In this section the question are about your relationship with your partner

16. How happy are you in your relationship with your partner/spouse?

Extremely/very happy	1
Happy	2
Neither happy nor unhappy	3
Unhappy	4
Extremely/very unhappy	5

17. How often do you have arguments with your partner which are not related to child rearing issues?

Never/hardly ever	1
Seldom	2
Sometimes	3
Often	4
Always	5

18. How often are there serious rows?

Never/hardly ever	1
Seldom	2
Sometimes	3
Often	4
Always	5

19. How often is _____(Child 1) exposed to conflict between you and your partner? And _____(Child 2)?

	Child 1	Child 2
Never/hardly ever	1	1
Seldom	2	2
Sometimes	3	3
Often	4	4
Always	5	5

20. How often does _____(Child 1) become involved in the conflict between you and your partner? And _____(Child 2)?

	Child 1	Child 2
Never/hardly ever	1	1
Seldom	2	2
Sometimes	3	3
Often	4	4
Always	5	5

21. No matter how well a couple gets along, there are times when they disagree on major decisions, get annoyed about something the other does, or just have spats or fights because they're in a bad mood or tired or for some other reason. They also use many different ways of trying to settle their differences.

If you had a row with your partner in the last year, have you done any of the following?

		No	*Yes*
1.	Discussed the issue calmly	1	2
2.	Got information to back up your side of things	1	2
3.	Brought in or tried to bring in someone else to settle things	1	2
4.	Insulted or swore at the other one	1	2
5.	Sulked and/or refused to talk about it	1	2
6.	Stomped out of the room or house (or yard)	1	2
7.	Cried	1	2
8.	Did or said something to spite the other one	1	2
9.	Threatened to hit or throw something at him/her	1	2
10.	Threw something or smashed or hit or kicked something	1	2
11.	Threw something at the other one	1	2
12.	Pushed, grabbed, or shoved the other one	1	2
13.	Slapped the other one	1	2
14.	Kicked, bit, or hit with a fist	1	2
15.	Hit or tried to hit with something	1	2
16.	Beat up the other one	1	2

22. In general, how would you describe your relationship with your partner/spouse?

Extremely/very satisfactory	1
Satisfactory	2
Neither satisfactory nor unsatisfactory ..	3
Unsatisfactory	4
Extremely/very unsatisfactory	5

CHILD 1_____

CHILD 2_____

In the following section questions are about your behaviour towards your children

23. To what extent do you know about _____(Child 1) life in the following areas?
To what extent do you know about _____(Child 2) life in the following areas?

		Child 1					Child 2			
		Always	*Usually*	*Sometimes*	*Seldom*	*Never*	*Always*	*Usually*	*Sometimes*	*Seldom*
1.	Child's choice of friends, who they are, what they are like	5	4	3	2	1	5	4	3	2
2.	Child's intellectual interests, both in and out of school	5	4	3	2	1	5	4	3	2
3.	Child's activities outside of school (e.g. sports, jobs, clubs, etc.)	5	4	3	2	1	5	4	3	2
4.	Child's interests in and activities with (boy or girl) friend; child's dating behaviour	5	4	3	2	1	5	4	3	2
5.	The extent of the child's sexual behaviour	5	4	3	2	1	5	4	3	2
6.	Child's health habits, such as amount of sleep, diet, exercise	5	4	3	2	1	5	4	3	2
7.	Child's use of tobacco	5	4	3	2	1	5	4	3	2
8.	Child's use of alcohol	5	4	3	2	1	5	4	3	2
9.	Child's use of drugs	5	4	3	2	1	5	4	3	2
10.	Child's problem behaviour in school (e.g. skipping/missing school, cutting classes, acting out, being late, being sent to the principal/head teacher's office, etc.)	5	4	3	2	1	5	4	3	2
11.	Child's school life such as teachers, homework, grades	5	4	3	2	1	5	4	3	2
12.	Child's extracurricular/out of school activities, sports, clubs, etc.	5	4	3	2	1	5	4	3	2
13.	Where your child is and what the child is doing when away from home	5	4	3	2	1	5	4	3	2

CHILD 1_____

24. The following items deal with issues that parents and children sometimes disagree on. Have you had a disagreement with _____(Child 1) over it in the past month? If YES, how often has this occurred?

	Please think about disagreements with _____ (C1) concerning:	Have you disagreed at all about this in the past month? *Yes*	*No*	How often have you disagreed? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
1.	The way this child acts toward his/her mother in the household	1	2	6	5	4	3	2	1
2.	The way this child acts toward his/her father in the household	1	2	6	5	4	3	2	1
3.	Behaviour toward brothers and sisters	1	2	6	5	4	3	2	1
4.	Manners	1	2	6	5	4	3	2	1
5.	Use of tobacco	1	2	6	5	4	3	2	1
6.	Telephone calls	1	2	6	5	4	3	2	1
7.	Getting up in the morning	1	2	6	5	4	3	2	1
8.	Getting to school on time	1	2	6	5	4	3	2	1
9.	Choice of reading matter, music, art	1	2	6	5	4	3	2	1
10.	TV (how much, which shows)	1	2	6	5	4	3	2	1
11.	Lying	1	2	6	5	4	3	2	1
12.	Chores (what they are, how they should be done, etc.)	1	2	6	5	4	3	2	1
13.	Health habits (eating, cleanliness, brushing teeth, etc.)	1	2	6	5	4	3	2	1
14.	Religious training	1	2	6	5	4	3	2	1
15.	Money (how much allowance, how money is spent)	1	2	6	5	4	3	2	1
16.	Dating	1	2	6	5	4	3	2	1
17.	Sexual behaviour	1	2	6	5	4	3	2	1
18.	Cursing/swearing	1	2	6	5	4	3	2	1
19.	Personal appearance (choice of clothes, haircuts, etc.)	1	2	6	5	4	3	2	1
20.	Household routines (bedtime, mealtimes, regular time for chores and studying, etc.)	1	2	6	5	4	3	2	1
21.	Homework (completing homework, quality of homework)	1	2	6	5	4	3	2	1
22.	School grades/school performance	1	2	6	5	4	3	2	1
23.	Behaviour in school	1	2	6	5	4	3	2	1
24.	Making too much noise at home	1	2	6	5	4	3	2	1

	Please think about disagreements with _____ (C1) concerning:	Have you disagreed at all about this in the past month? Yes	No	How often have you disagreed? More than once a day	Every day	5 or 6 times in the last week	3 or 4 times in the last week	1 or 2 times in the last week	Not at in the week, at leas once i the las month
25.	Playing stereo, radio, TV too loudly	1	2	6	5	4	3	2	1
26.	Taking care of records, games, bikes, pets, and things	1	2	6	5	4	3	2	1
27.	How free time is spent	1	2	6	5	4	3	2	1
28.	Curfew	1	2	6	5	4	3	2	1
29.	Letting you know where she/he is and what she/he is doing when away from home	1	2	6	5	4	3	2	1
30.	Choice of friends	1	2	6	5	4	3	2	1
31.	Use of drugs	1	2	6	5	4	3	2	1
32.	Use of alcohol	1	2	6	5	4	3	2	1
33.	Use of the car	1	2	6	5	4	3	2	1
34.	Keeping room tidy	1	2	6	5	4	3	2	1
35.	Bothering you and your partner when you want to be left alone	1	2	6	5	4	3	2	1
36.	Bothering _____(Child 2) when she/he wants to be left alone	1	2	6	5	4	3	2	1
37.	Going to church	1	2	6	5	4	3	2	1
38.	Type of social activities such as dances, movies, video, arcades, hanging around the mall, etc.	1	2	6	5	4	3	2	1
	Other Areas of Disagreement (Please list:)								
39.	_____	1	2	6	5	4	3	2	1
40.	_____	1	2	6	5	4	3	2	1
41.	_____	1	2	6	5	4	3	2	1

CHILD 2_____

25. Here are some similar questions only about _____(Child 2).

	Please think about disagreements with _____ (C2) concerning:	Have you disagreed at all about this in the past month? *Yes*	*No*	How often have you disagreed? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
1.	The way this child acts toward his/her mother in the household	1	2	6	5	4	3	2	1
2.	The way this child acts toward his/her father in the household	1	2	6	5	4	3	2	1
3.	Behaviour toward brothers and sisters	1	2	6	5	4	3	2	1
4.	Manners	1	2	6	5	4	3	2	1
5.	Use of tobacco	1	2	6	5	4	3	2	1
6.	Telephone calls	1	2	6	5	4	3	2	1
7.	Getting up in the morning	1	2	6	5	4	3	2	1
8.	Getting to school on time	1	2	6	5	4	3	2	1
9.	Choice of reading matter, music, art	1	2	6	5	4	3	2	1
10.	TV (how much, which shows)	1	2	6	5	4	3	2	1
11.	Lying	1	2	6	5	4	3	2	1
12.	Chores (what they are, how they should be done, etc.)	1	2	6	5	4	3	2	1
13.	Health habits (eating, cleanliness, brushing teeth, etc.)	1	2	6	5	4	3	2	1
14.	Religious training	1	2	6	5	4	3	2	1
15.	Money (how much allowance, how money is spent)	1	2	6	5	4	3	2	1
16.	Dating	1	2	6	5	4	3	2	1
17.	Sexual behaviour	1	2	6	5	4	3	2	1
18.	Cursing/swearing	1	2	6	5	4	3	2	1
19.	Personal appearance (choice of clothes, haircuts, etc.)	1	2	6	5	4	3	2	1
20.	Household routines (bedtime, mealtimes, regular time for chores and studying, etc.)	1	2	6	5	4	3	2	1
21.	Homework (completing homework, quality of homework)	1	2	6	5	4	3	2	1
22.	School grades/school performances	1	2	6	5	4	3	2	1
23.	Behaviour in school	1	2	6	5	4	3	2	1
24.	Making too much noise at home	1	2	6	5	4	3	2	1

	Please think about disagreements with _____ (C2) concerning:	Have you disagreed at all about this in the past month? *Yes*	*No*	How often have you disagreed? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not o in the week at lea once the la mont*
25.	Playing stereo, radio, TV too loudly	1	2	6	5	4	3	2	1
26.	Taking care of records, games, bikes, pets, and things	1	2	6	5	4	3	2	1
27.	How free time is spent	1	2	6	5	4	3	2	1
28.	Curfew	1	2	6	5	4	3	2	1
29.	Letting you know where she/he is and what she/he is doing when away from home	1	2	6	5	4	3	2	1
30.	Choice of friends	1	2	6	5	4	3	2	1
31.	Use of drugs	1	2	6	5	4	3	2	1
32.	Use of alcohol	1	2	6	5	4	3	2	1
33.	Use of the car	1	2	6	5	4	3	2	1
34.	Keeping room tidy	1	2	6	5	4	3	2	1
35.	Bothering you and your partner when you want to be left alone	1	2	6	5	4	3	2	1
36.	Bothering _____(Child 1) when she/he wants to be left alone	1	2	6	5	4	3	2	1
37.	Going to church	1	2	6	5	4	3	2	1
38.	Type of social activities such as dances, movies, video, arcades, hanging around the mall, etc.	1	2	6	5	4	3	2	1
	Other Areas of Disagreement (Please list:)								
39.	_____	1	2	6	5	4	3	2	1
40.	_____	1	2	6	5	4	3	2	1
41.	_____	1	2	6	5	4	3	2	1

CHILD 1_____

26. The following questions deal with ways in which parents and their children interact/get on with each other. Have you behaved toward _____ (Child 1) in that way in the past month? If YES, how often have you done it?

	When you were with _____ (C1), how much have you:	Have you done this in the past month? *Yes*	*No*	How <u>often</u> have you done it? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
1.	Talked to this child about something he/she did wrong	1	2	6	5	4	3	2	1
2.	Yelled at this child about something he/she did wrong	1	2	6	5	4	3	2	1
3.	Taken away privileges for something this child did wrong	1	2	6	5	4	3	2	1
4.	Sent this child to his/her room or made him/her stay alone	1	2	6	5	4	3	2	1
5.	Spanked, slapped, or hit this child	1	2	6	5	4	3	2	1
6.	Apologised after an argument turned out badly	1	2	6	5	4	3	2	1
7.	Compromised during a disagreement or argument ("compromise" means both give in a little)	1	2	6	5	4	3	2	1
8.	Talked over a decision with this child that concerned him/her	1	2	6	5	4	3	2	1
9.	Listened to this child's side or point of view when you disagreed	1	2	6	5	4	3	2	1
10.	Changed your mind about a rule or punishment after listening to this child, if his/her argument seemed reasonable	1	2	6	5	4	3	2	1
11.	Insisted that this child work out something on his/her own	1	2	6	5	4	3	2	1
12.	Brought up a lot of this child's faults when the two of you argued	1	2	6	5	4	3	2	1
13.	Told the child that the argument was all his/her fault	1	2	6	5	4	3	2	1
14.	Told this child that you understood his/her point of view even if you disagreed with it	1	2	6	5	4	3	2	1
15.	Told or showed that you wanted this child to act his/her age	1	2	6	5	4	3	2	1
16.	Tried to explain to this child why you think the rules you set for him/her are important and should be followed	1	2	6	5	4	3	2	1

	When you were with _____ (C1), how much have you:	Have you done this in the past month?		How <u>often</u> have you done it?					
		Yes	*No*	*More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at in the week, at lea once the la month*
17.	Ridiculed or put this child down when the two of you argued	1	2	6	5	4	3	2	1
18.	Made fun of this child when he/she did something wrong	1	2	6	5	4	3	2	1
19.	Treated this child as if he/she were much younger than he/she really is	1	2	6	5	4	3	2	1
20.	Found that the way you acted toward this child was strongly affected by the mood you were in	1	2	6	5	4	3	2	1
21.	Been overprotective of this child	1	2	6	5	4	3	2	1
22.	Pushed this child more severely than usual for misbehaviour	1	2	6	5	4	3	2	1
23.	Told this child to do something "Because I said so"	1	2	6	5	4	3	2	1
24.	Tried to get this child to see why something he/she did was wrong	1	2	6	5	4	3	2	1
25.	Asked this child for his/her views when the two of you disagreed	1	2	6	5	4	3	2	1
26.	Been too busy to spend time with this child	1	2	6	5	4	3	2	1
27.	Ignored this child's bid for attention or help	1	2	6	5	4	3	2	1
28.	Encouraged this child to choose how to do things	1	2	6	5	4	3	2	1
29.	Been impatient with this child	1	2	6	5	4	3	2	1
30.	Let this child get away with bad behaviour	1	2	6	5	4	3	2	1
31.	Failed to check on this child to see if he/she had done what he/she was supposed to have done	1	2	6	5	4	3	2	1
32.	Not gone through with threat of punishment to this child	1	2	6	5	4	3	2	1
33.	Tried to understand how this child felt about things	1	2	6	5	4	3	2	1
34.	Seen to it that this child obeyed the rules	1	2	6	5	4	3	2	1
35.	Been talked into things easily by this child	1	2	6	5	4	3	2	1
36.	Given this child a choice of what to do	1	2	6	5	4	3	2	1
37.	Given in to this child to make things easier for you	1	2	6	5	4	3	2	1

	When you were with _____ (C1), how much have you:	Have you done this in the past month? *Yes*	*No*	How often have you done it? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
38.	Ignored it when this child broke a rule that you previously set	1	2	6	5	4	3	2	1
39.	Respected this child's position even if you had a difference in opinion	1	2	6	5	4	3	2	1
40.	Encouraged this child to be self directed -- to do homework, clean up room, etc., without being asked	1	2	6	5	4	3	2	1
41.	Encouraged this child to behave independently	1	2	6	5	4	3	2	1
42.	Solicited this child's opinion	1	2	6	5	4	3	2	1
43.	Encouraged this child to take responsibility	1	2	6	5	4	3	2	1

CHILD 2_____

27. Again, here are some similar questions only about _____ (Child 2).

	When you were with _____ (C2), how much have you:	Have you done this in the past month?		How often have you done it?					
		Yes	*No*	*More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not a in the week, at lea once the la month*
1.	Talked to this child about something he/she did wrong	1	2	6	5	4	3	2	1
2.	Yelled at this child about something he/she did wrong	1	2	6	5	4	3	2	1
3.	Taken away privileges for something this child did wrong	1	2	6	5	4	3	2	1
4.	Sent this child to his/her room or made him/her stay alone	1	2	6	5	4	3	2	1
5.	Spanked, slapped, or hit this child	1	2	6	5	4	3	2	1
6.	Apologised after an argument turned out badly	1	2	6	5	4	3	2	1
7.	Compromised during a disagreement or argument ("compromise" means both give in a little)	1	2	6	5	4	3	2	1
8.	Talked over a decision with this child that concerned him/her	1	2	6	5	4	3	2	1
9.	Listened to this child's side or point of view when you disagreed	1	2	6	5	4	3	2	1
10.	Changed your mind about a rule or punishment after listening to this child, if his/her argument seemed reasonable	1	2	6	5	4	3	2	1
11.	Insisted that this child work out something on his/her own	1	2	6	5	4	3	2	1
12.	Brought up a lot of this child's faults when the two of you argued	1	2	6	5	4	3	2	1
13.	Told the child that the argument was all his/her fault	1	2	6	5	4	3	2	1
14.	Told this child that you understood his/her point of view even if you disagreed with it	1	2	6	5	4	3	2	1
15.	Told or showed that you wanted this child to act his/her age	1	2	6	5	4	3	2	1
16.	Tried to explain to this child why you think the rules you set for him/her are important and should be followed	1	2	6	5	4	3	2	1

	When you were with _____ (C2), how much have you:	Have you done this in the past month?		How <u>often</u> have you done it?					
		Yes	*No*	*More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
17.	Ridiculed or put this child down when the two of you argued	1	2	6	5	4	3	2	1
18.	Made fun of this child when he/she did something wrong	1	2	6	5	4	3	2	1
19.	Treated this child as if he/she were much younger than he/she really is	1	2	6	5	4	3	2	1
20.	Found that the way you acted toward this child was strongly affected by the mood you were in	1	2	6	5	4	3	2	1
21.	Been overprotective of this child	1	2	6	5	4	3	2	1
22.	Pushed this child more severely than usual for misbehaviour	1	2	6	5	4	3	2	1
23.	Told this child to do something "Because I said so"	1	2	6	5	4	3	2	1
24.	Tried to get this child to see why something he/she did was wrong	1	2	6	5	4	3	2	1
25.	Asked this child for his/her views when the two of you disagreed	1	2	6	5	4	3	2	1
26.	Been too busy to spend time with this child	1	2	6	5	4	3	2	1
27.	Ignored this child's bid for attention or help	1	2	6	5	4	3	2	1
28.	Encouraged this child to choose how to do things	1	2	6	5	4	3	2	1
29.	Been impatient with this child	1	2	6	5	4	3	2	1
30.	Let this child get away with bad behaviour	1	2	6	5	4	3	2	1
31.	Failed to check on this child to see if he/she had done what he/she was supposed to have done	1	2	6	5	4	3	2	1
32.	Not gone through with threat of punishment to this child	1	2	6	5	4	3	2	1
33.	Tried to understand how this child felt about things	1	2	6	5	4	3	2	1
34.	Seen to it that this child obeyed the rules	1	2	6	5	4	3	2	1
35.	Been talked into things easily by this child	1	2	6	5	4	3	2	1
36.	Given this child a choice of what to do	1	2	6	5	4	3	2	1
37.	Given in to this child to make things easier for you	1	2	6	5	4	3	2	1

	When you were with _____ (C2), how much have you:	Have you done this in the past month? *Yes*	*No*	How <u>often</u> have you done it? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not o in th week at le once the l mon*
38.	Ignored it when this child broke a rule that you previously set	1	2	6	5	4	3	2	
39.	Respected this child's position even if you had a difference in opinion	1	2	6	5	4	3	2	
40.	Encouraged this child to be self directed -- to do homework, clean up room, etc., without being asked	1	2	6	5	4	3	2	
41.	Encouraged this child to behave independently	1	2	6	5	4	3	2	
42.	Solicited this child's opinion	1	2	6	5	4	3	2	
43.	Encouraged this child to take responsibility	1	2	6	5	4	3	2	

CHILD 1_____

28. Here is a list of things you might have done when you had a conflict or disagreement with your children. Have you behaved toward _____ (Child 1) in that way in the past month? If YES, how often have you done it?

	When you disagreed or had a conflict with _____(C1), how often have you:	Have you done this in the past month? *Yes*	*No*	How often have you done it? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
1.	Argued heatedly but short of yelling/shouting	1	2	6	5	4	3	2	1
2.	Yelled/shouted and/or insulted	1	2	6	5	4	3	2	1
3.	Sulked and/or refused to talk about it	1	2	6	5	4	3	2	1
4.	Stomped out of the room	1	2	6	5	4	3	2	1
5.	Threw something (but not at Child 1) or smashed or hit or kicked something	1	2	6	5	4	3	2	1
6.	Threatened to hit or throw something at him/her	1	2	6	5	4	3	2	1

CHILD 2_____

29. Now please answer similar questions only for _____ (Child 2).

	When you disagreed or had a conflict with _____(C2), how often have you:	Have you done this in the past month? *Yes*	*No*	How often have you done it? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
1.	Argued heatedly but short of yelling/shouting	1	2	6	5	4	3	2	1
2.	Yelled/shouted and/or insulted	1	2	6	5	4	3	2	1
3.	Sulked and/or refused to talk about it	1	2	6	5	4	3	2	1
4.	Stomped out of the room	1	2	6	5	4	3	2	1
5.	Threw something (but not at Child 2) or smashed or hit or kicked something	1	2	6	5	4	3	2	1
6.	Threatened to hit or throw something at him/her	1	2	6	5	4	3	2	1

CHILD 1_____

CHILD 2_____

30. **The following questions deal with your relationship with _____ (Child 1) and your relationship with _____ (Child 2). Please answer each question first for _____ (Child 1) and then for _____ (Child 2).**

		Child 1					Child 2			
		Extremely	*Very*	*Somewhat*	*A little*	*Not at all*	*Extremely*	*Very*	*Somewhat*	*A little*
1.	How well do you get on with Child 1? With Child 2?	5	4	3	2	1	5	4	3	2
2.	How close are you to Child 1? To Child 2?	5	4	3	2	1	5	4	3	2
3.	How much do you enjoy spending time alone with Child 1? With Child 2?	5	4	3	2	1	5	4	3	2
4.	How satisfied are you with the amount of time you spend alone with Child 1? With Child 2?	5	4	3	2	1	5	4	3	2
5.	How affectionate/close are you towards/to Child 1? Towards Child 2?	5	4	3	2	1	5	4	3	2
6.	How much do you understand Child 1? Child 2?	5	4	3	2	1	5	4	3	2
7.	How much do you care about what Child 1 thinks about you? Child 2?	5	4	3	2	1	5	4	3	2
8.	How much do you think Child 1 is like you? Child 2?	5	4	3	2	1	5	4	3	2
9.	How responsive are you to Child 1? Child 2?	5	4	3	2	1	5	4	3	2
10.	How good is the communication between you and Child 1? Child 2?	5	4	3	2	1	5	4	3	2
11.	How much do you yell/ shout at Child 1 after you've had a bad day? At Child 2?	5	4	3	2	1	5	4	3	2
12.	How much do you nag Child 1 about what he/she is doing wrong? Child 2?	5	4	3	2	1	5	4	3	2
13.	How much do you criticise Child 1? Child 2?	5	4	3	2	1	5	4	3	2
14.	How much does Child 1 get into disagreements or fights with you? Child 2?	5	4	3	2	1	5	4	3	2
15.	How much do you enjoy being Child 1's parent? Child 2's?	5	4	3	2	1	5	4	3	2

CHILD 1_____

31. The following items deal with issues that parents and children do just to be together or to show each other affection. Have you done this with _____ (Child 1) in the past month? If YES, how often has this occurred?

	Thinking about _____ (Child 1), have you:	Have you done this at all in the past month? *Yes*	*No*	How often have you done it? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
1.	Spent time together	1	2	6	5	4	3	2	1
2.	Given a hug, kiss, pat on the back or other physical sign of affection	1	2	6	5	4	3	2	1
3.	Played games, sports etc. together	1	2	6	5	4	3	2	1
4.	Talked for 10 minutes or more about his/her activities, school, hobbies, and common interests	1	2	6	5	4	3	2	1
5.	Visited with friends or relatives	1	2	6	5	4	3	2	1
6.	Bought or made a gift for another family member	1	2	6	5	4	3	2	1
7.	Laughed together about something	1	2	6	5	4	3	2	1
8.	Worked on school work together	1	2	6	5	4	3	2	1
9.	Told or listened to a joke	1	2	6	5	4	3	2	1
10.	Gone for a walk, bike ride, swim, picnic, fishing, jogging, exercising, to the beach, etc.	1	2	6	5	4	3	2	1
11.	Gone to or given a party together	1	2	6	5	4	3	2	1
12.	Built or made something together (e.g., made a model, cooked a meal, repaired something, etc.)	1	2	6	5	4	3	2	1
13.	Played a musical instrument, sang together or listened to music together	1	2	6	5	4	3	2	1
14.	Gone looking at rocks, flowers, shells, birds, stars, or the like	1	2	6	5	4	3	2	1
15.	Given praise or a compliment	1	2	6	5	4	3	2	1
16.	Gone out together for something like dinner, a movie, a museum, shopping, or to get a snack such as ice cream or a coke	1	2	6	5	4	3	2	1
17.	Given him/her extra privileges, like later curfew or extra dessert	1	2	6	5	4	3	2	1
18.	Given extra money or something special like an unexpected gift	1	2	6	5	4	3	2	1
19.	Told him/her that you love him/her	1	2	6	5	4	3	2	1

	Thinking about _____ (Child 1), have you:	Have you done this in the past month?		How <u>often</u> have you done it?					
		Yes	*No*	*More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not o in the week at lea once the la mont*
20.	Gone to see him/her perform or display his/her work or skills in a sporting event, concert, play, art show, etc.	1	2	6	5	4	3	2	1
21.	Talked with him/her about something that was worrying or concerning him/her	1	2	6	5	4	3	2	1
22.	Participated in a hobby together (e.g., stamp collecting, model building, woodworking, sewing, needlepoint, etc.)	1	2	6	5	4	3	2	1

CHILD 2_____

32. Here are some similar questions only about _____ (Child 2).

	Thinking about _____ (Child 2), have you:	Have you done this at all in the past month? *Yes*	*No*	How often have you done it? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
1.	Spent time together	1	2	6	5	4	3	2	1
2.	Given a hug, kiss, pat on the back or other physical sign of affection	1	2	6	5	4	3	2	1
3.	Played games, sports etc together	1	2	6	5	4	3	2	1
4.	Talked for 10 minutes or more about his/her activities, school, hobbies, and common interests	1	2	6	5	4	3	2	1
5.	Visited with friends or relatives	1	2	6	5	4	3	2	1
6.	Bought or made a gift for another family member	1	2	6	5	4	3	2	1
7.	Laughed together about something	1	2	6	5	4	3	2	1
8.	Worked on school work together	1	2	6	5	4	3	2	1
9.	Told or listened to a joke	1	2	6	5	4	3	2	1
10.	Gone for a walk, bike ride, swim, picnic, fishing, jogging, exercising, to the beach, etc.	1	2	6	5	4	3	2	1
11.	Gone to or given a party together	1	2	6	5	4	3	2	1
12.	Built or made something together (e.g., made a model, cooked a meal, repaired something, etc.)	1	2	6	5	4	3	2	1
13.	Played a musical instrument, sang together or listened to music together	1	2	6	5	4	3	2	1
14.	Gone looking at rocks, flowers, shells, birds, stars, or the like	1	2	6	5	4	3	2	1
15.	Given praise or a compliment	1	2	6	5	4	3	2	1
16.	Gone out together for something like dinner, a movie, a museum, shopping, or to get a snack such as ice cream or a coke	1	2	6	5	4	3	2	1
17.	Given him/her extra privileges, like later curfew or extra dessert	1	2	6	5	4	3	2	1
18.	Given him/her extra money or something special like an unexpected gift	1	2	6	5	4	3	2	1
19.	Told him/her that you love him/her	1	2	6	5	4	3	2	1

	Thinking about _____ (Child 2), have you:	Have you done this in the past month?		How <u>often</u> have you done it?					
		Yes	*No*	*More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at in the week, at lea once the la month*
20.	Gone to see him/her perform or display his/her work or skills in a sporting event, concert, play, art show, etc.	1	2	6	5	4	3	2	1
21.	Talked with him/her about something that was worrying or concerning him/her	1	2	6	5	4	3	2	1
22.	Participated in a hobby together (e.g., stamp collecting, model building, woodworking, sewing, needlepoint, etc.)	1	2	6	5	4	3	2	1

Thank you very much for your help! This is the end of the questionnaire. Would you like to make any comments?

CODE: F _ _ _ _ _ S

Questionnaire:

Child Version

Drinking Patterns and Other Risk-Taking Behaviours: Relationships Between Siblings and Their Parents

Alcohol and Health Research Centre
City Hospital
Greenbank Drive
Edinburgh EH10 5SB

In cooperation with

University of Edinburgh

The first few questions are about your background, what you do and so on

1. What is your sex?

Male 1 Female 2

2. When were you born?

Month ☐☐ Year ☐☐

3. What are you doing at the moment?

	No	Yes	
I'm going to primary school	1	2	Class ☐
I'm going to secondary school	1	2	Class ☐
I'm going to college/university	1	2	Year ☐
I'm doing an apprenticeship	1	2	Year ☐
I'm working part-time	1	2	Year ☐
I'm working full-time	1	2	Year ☐

4. Have you reached any of the following educational levels?

Standard Grade	1
Higher Grade	2
Sixth year Grade/A-level.....	3

5. How good do you think you are/were at schoolwork compared to other people your age?

Excellent, I'm probably one of the very best	1
Well above average	2
Above average	3
Average	4
Below average	5
Well below average	6
Poor, I'm probably one of the worst	7

In this section you will be answering questions regarding your Mother's and your Father's behaviour towards you. Mothers and Fathers are often very different from one another. Thus your Mother and Father may not treat you in the same way.

6. I'm interested in how much your Mother and your Father know about what you do in school and out of school, who your friends are, and so forth. To what extent do your Mother and Father know about your life in the following areas?

		How much your Mother knows					**How much your Fa knows**			
		Al-ways	*Usual-ly*	*Some-times*	*Sel-dom*	*Never*	*Al-ways*	*Usual-ly*	*Some-times*	*Sel-dom*
1.	Your choice of friends, who they are, what they are like	5	4	3	2	1	5	4	3	2
2.	Your intellectual interests, both in and out of school	5	4	3	2	1	5	4	3	2
3.	Your activities outside of school (e.g. sports, jobs, clubs, etc.)	5	4	3	2	1	5	4	3	2
4.	Your interests in and activities with (boy or girl) friend; your dating behaviour	5	4	3	2	1	5	4	3	2
5.	The extent of your sexual behaviour	5	4	3	2	1	5	4	3	2
6.	Your health habits, such as amount of sleep, diet, exercise	5	4	3	2	1	5	4	3	2
7.	Your use of tobacco	5	4	3	2	1	5	4	3	2
8.	Your use of alcohol	5	4	3	2	1	5	4	3	2
9.	Your use of drugs	5	4	3	2	1	5	4	3	2
10.	Your problem behaviour in school (e.g. skipping/missing school, cutting classes, acting out, being late, being sent to the principal's/head teacher's office, etc.)	5	4	3	2	1	5	4	3	2
11.	Your school life such as who your teachers are, if and how well you do your homework, your grades	5	4	3	2	1	5	4	3	2
12.	Your extracurricular/out of school activities, sports, clubs, etc.	5	4	3	2	1	5	4	3	2
13.	Where you are and what you are doing when you are not at home	5	4	3	2	1	5	4	3	2

7. **The following items deal with issues that parents and children sometimes disagree on. Have you had a disagreement with your Mother over the following things in the past month? If YES, how often has this occurred?**

	Please think about disagreements with your **Mother** concerning:	Have you disagreed at all about this in the past month? *Yes*	*No*	How often have you disagreed? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
1.	Your behaviour toward your mother (her)	1	2	6	5	4	3	2	1
2.	Your behaviour toward your father	1	2	6	5	4	3	2	1
3.	Your behaviour toward your brothers and sisters	1	2	6	5	4	3	2	1
4.	Your manners	1	2	6	5	4	3	2	1
5.	Your use of tobacco	1	2	6	5	4	3	2	1
6.	Your telephone calls	1	2	6	5	4	3	2	1
7.	Your getting up in the morning	1	2	6	5	4	3	2	1
8.	Getting to school on time	1	2	6	5	4	3	2	1
9.	Your choice of reading matter, music, art	1	2	6	5	4	3	2	1
10.	TV (how much, which shows)	1	2	6	5	4	3	2	1
11.	Your lying	1	2	6	5	4	3	2	1
12.	Your chores (what they are, how they should be done, etc.)	1	2	6	5	4	3	2	1
13.	Your health habits (eating, cleanliness, brushing teeth, etc.)	1	2	6	5	4	3	2	1
14.	Your religious training	1	2	6	5	4	3	2	1
15.	Your money (how much allowance, how money is spent)	1	2	6	5	4	3	2	1
16.	Your dating	1	2	6	5	4	3	2	1
17.	Your sexual behaviour	1	2	6	5	4	3	2	1
18.	Your cursing/swearing	1	2	6	5	4	3	2	1
19.	Your personal appearance (choice of clothes, haircuts, etc.)	1	2	6	5	4	3	2	1
20.	Your household routines (bedtime, mealtimes, regular time for chores and studying, etc.)	1	2	6	5	4	3	2	1
21.	Your homework (completing homework, quality of homework)	1	2	6	5	4	3	2	1
22.	Your school grades/school performance	1	2	6	5	4	3	2	1
23.	Your behaviour in school	1	2	6	5	4	3	2	1
24.	Your making too much noise at home	1	2	6	5	4	3	2	1

	Please think about disagreements with your **Mother** concerning:	Have you disagreed at all about this in the past month? *Yes*	*No*	How often have you disagreed? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not a in the week, at lea once the la month*
25.	Your playing stereo, radio, TV too loudly	1	2	6	5	4	3	2	1
26.	Your taking care of records, games, bikes, pets, and things	1	2	6	5	4	3	2	1
27.	How your free time is spent	1	2	6	5	4	3	2	1
28.	Your curfew	1	2	6	5	4	3	2	1
29.	Letting her know where you are and what you are doing when away from home	1	2	6	5	4	3	2	1
30.	Your choice of friends	1	2	6	5	4	3	2	1
31.	Your use of drugs	1	2	6	5	4	3	2	1
32.	Your use of alcohol	1	2	6	5	4	3	2	1
33.	Your use of the car	1	2	6	5	4	3	2	1
34.	Keeping your room tidy	1	2	6	5	4	3	2	1
35.	Bothering her and your father when they want to be left alone	1	2	6	5	4	3	2	1
36.	Bothering your brothers and sisters when they want to be left alone	1	2	6	5	4	3	2	1
37.	Your going to church	1	2	6	5	4	3	2	1
38.	Type of social activities you are involved in, such as dances, movies, video, arcades, hanging around the mall, etc.	1	2	6	5	4	3	2	1
	Other Areas of Disagreement: (Please list:)								
39.	_____	1	2	6	5	4	3	2	1
40.	_____	1	2	6	5	4	3	2	1
41.	_____	1	2	6	5	4	3	2	1

8. Here are some similar questions only about disagreements with your Father in the past month.

	Please think about disagreements with your **Father** concerning:	Have you disagreed at all about this in the past month? *Yes*	*No*	How often have you disagreed? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
1.	Your behaviour toward your mother	1	2	6	5	4	3	2	1
2.	Your behaviour toward your father (him)	1	2	6	5	4	3	2	1
3.	Your behaviour toward your brothers and sisters	1	2	6	5	4	3	2	1
4.	Your manners	1	2	6	5	4	3	2	1
5.	Your use of tobacco	1	2	6	5	4	3	2	1
6.	Your telephone calls	1	2	6	5	4	3	2	1
7.	Your getting up in the morning	1	2	6	5	4	3	2	1
8.	Getting to school on time	1	2	6	5	4	3	2	1
9.	Your choice of reading matter, music, art	1	2	6	5	4	3	2	1
10.	TV (how much, which shows)	1	2	6	5	4	3	2	1
11.	Your lying	1	2	6	5	4	3	2	1
12.	Your chores (what they are, how they should be done, etc.)	1	2	6	5	4	3	2	1
13.	Your health habits (eating, cleanliness, brushing teeth, etc.)	1	2	6	5	4	3	2	1
14.	Your religious training	1	2	6	5	4	3	2	1
15.	Your money (how much allowance, how money is spent)	1	2	6	5	4	3	2	1
16.	Your dating	1	2	6	5	4	3	2	1
17.	Your sexual behaviour	1	2	6	5	4	3	2	1
18.	Your cursing/swearing	1	2	6	5	4	3	2	1
19.	Your personal appearance (choice of clothes, haircuts, etc.)	1	2	6	5	4	3	2	1
20.	Your household routines (bedtime, mealtimes, regular time for chores and studying, etc.)	1	2	6	5	4	3	2	1
21.	Your homework (completing homework, quality of homework)	1	2	6	5	4	3	2	1
22.	Your school grades/school performance	1	2	6	5	4	3	2	1
23.	Your behaviour in school	1	2	6	5	4	3	2	1
24.	Your making too much noise at home	1	2	6	5	4	3	2	1

	Please think about disagreements with your **Father** concerning:	Have you disagreed at all about this in the past month? *Yes*	*No*	How often have you disagreed? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not*
25.	Your playing stereo, radio, TV too loudly	1	2	6	5	4	3	2	
26.	Your taking care of records, games, bikes, pets, and things	1	2	6	5	4	3	2	
27.	How your free time is spent	1	2	6	5	4	3	2	
28.	Your curfew	1	2	6	5	4	3	2	
29.	Letting him know where you are and what you are doing when away from home	1	2	6	5	4	3	2	
30.	Your choice of friends	1	2	6	5	4	3	2	
31.	Your use of drugs	1	2	6	5	4	3	2	
32.	Your use of alcohol	1	2	6	5	4	3	2	
33.	Your use of the car	1	2	6	5	4	3	2	
34.	Keeping your room tidy	1	2	6	5	4	3	2	
35	Bothering him and your mother when they want to be left alone	1	2	6	5	4	3	2	
36.	Bothering your brothers and sisters when they want to be left alone	1	2	6	5	4	3	2	
37.	Your going to church	1	2	6	5	4	3	2	
38.	Type of social activities you are involved in, such as dances, movies, video, arcades, hanging around the mall, etc.	1	2	6	5	4	3	2	
	Other Areas of Disagreement (Please list:)								
39.	_____	1	2	6	5	4	3	2	
40.	_____	1	2	6	5	4	3	2	
41.	_____	1	2	6	5	4	3	2	

9. The next questions deal with ways in which parents and their children interact/get on with each other. Has your Mother behaved toward you in that way in the past month? If YES, how often has she done it?

	Has your **Mother**:	Has this happened in the past month?		How often has it happened?					
		Yes	*No*	*More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
1.	Talked to you about something you did wrong	1	2	6	5	4	3	2	1
2.	Yelled/shouted at you about something you did wrong	1	2	6	5	4	3	2	1
3.	Taken away privileges for something you did wrong	1	2	6	5	4	3	2	1
4.	Sent you to your room or made you stay alone	1	2	6	5	4	3	2	1
5.	Spanked, slapped, or hit you	1	2	6	5	4	3	2	1
6.	Apologised after an argument turned out badly	1	2	6	5	4	3	2	1
7.	Compromised during a disagreement or argument ("compromise" means both give in a little)	1	2	6	5	4	3	2	1
8.	Talked over a decision with you that concerned you	1	2	6	5	4	3	2	1
9.	Listened to your side or point of view when the two of you disagreed	1	2	6	5	4	3	2	1
10.	Changed her mind about a rule or punishment after listening to you, if your arguments seemed reasonable	1	2	6	5	4	3	2	1
11.	Insisted that you work out something on your own	1	2	6	5	4	3	2	1
12.	Brought up a lot of your faults when the two of you argued	1	2	6	5	4	3	2	1
13.	Told you that the argument was all your fault	1	2	6	5	4	3	2	1
14.	Told you that she understood your point of view even if she disagreed with it	1	2	6	5	4	3	2	1
15.	Told or showed that she wanted you to act your age	1	2	6	5	4	3	2	1
16.	Tried to explain to you why she thinks the rules she set for you are important and should be followed	1	2	6	5	4	3	2	1
17.	Ridiculed or put you down when the two of you argued	1	2	6	5	4	3	2	1

	Has your **Mother**:	Has this happened in the past month?		How often has it happened?					
		Yes	*No*	*More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not a in the week, at lea once the la month*
18.	Made fun of you when you did something wrong	1	2	6	5	4	3	2	1
19.	Treated you as if you were much younger than you really are	1	2	6	5	4	3	2	1
20.	Found that the way she acted toward you was strongly affected by the mood she was in	1	2	6	5	4	3	2	1
21.	Been overprotective of you	1	2	6	5	4	3	2	1
22.	Pushed you more severely than usual for misbehaviour	1	2	6	5	4	3	2	1
23.	Told you to do something "Because I said so"	1	2	6	5	4	3	2	1
24.	Tried to get you to see why something you did was wrong	1	2	6	5	4	3	2	1
25.	Asked you for your views when the two of you disagreed	1	2	6	5	4	3	2	1
26.	Been too busy to spend time with you	1	2	6	5	4	3	2	1
27.	Ignored your bid for attention or help	1	2	6	5	4	3	2	1
28.	Encouraged you to choose how to do things	1	2	6	5	4	3	2	1
29.	Been impatient with you	1	2	6	5	4	3	2	1
30.	Let you get away with bad behaviour	1	2	6	5	4	3	2	1
31.	Failed to check on you to see if you had done what you were supposed to have done	1	2	6	5	4	3	2	1
32.	Not gone through with threat of punishment to you	1	2	6	5	4	3	2	1
33.	Tried to understand how you felt about things	1	2	6	5	4	3	2	1
34.	Seen to it that you obeyed the rules	1	2	6	5	4	3	2	1
35.	Been talked into things easily by you	1	2	6	5	4	3	2	1
36.	Given you a choice of what to do	1	2	6	5	4	3	2	1
37.	Given in to you to make things easier for her	1	2	6	5	4	3	2	1
38.	Ignored it when you broke a rule that she previously set	1	2	6	5	4	3	2	1
39.	Respected your position even if she had a difference in opinion	1	2	6	5	4	3	2	1
40.	Encouraged you to be self directed -- to do homework, clean up room, etc., without being asked	1	2	6	5	4	3	2	1

	Has your **Mother**:	Has this happened in the past month? *Yes*	*No*	How often has it happened? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
41.	Encouraged you to behave independently	1	2	6	5	4	3	2	1
42.	Solicited your opinion	1	2	6	5	4	3	2	1
43.	Encouraged you to take responsibility	1	2	6	5	4	3	2	1

10. Again, here are some similar questions only about your Father.

	Has your **Father**:	Has this happened in the past month? *Yes*	*No*	How often has it happened? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at in the week, at leas once i the las month*
1.	Talked to you about something you did wrong	1	2	6	5	4	3	2	1
2.	Yelled/shouted at you about something you did wrong	1	2	6	5	4	3	2	1
3.	Taken away privileges for something you did wrong	1	2	6	5	4	3	2	1
4.	Sent you to your room or made you stay alone	1	2	6	5	4	3	2	1
5.	Spanked, slapped, or hit you	1	2	6	5	4	3	2	1
6.	Apologised after an argument turned out badly	1	2	6	5	4	3	2	1
7.	Compromised during a disagreement or argument ("compromise" means both give in a little)	1	2	6	5	4	3	2	1
8.	Talked over a decision with you that concerned you	1	2	6	5	4	3	2	1
9.	Listened to your side or point of view when the two of you disagreed	1	2	6	5	4	3	2	1
10.	Changed his mind about a rule or punishment after listening to you, if your arguments seemed reasonable	1	2	6	5	4	3	2	1
11.	Insisted that you work out something on your own	1	2	6	5	4	3	2	1
12.	Brought up a lot of your faults when the two of you argued	1	2	6	5	4	3	2	1
13.	Told you that the argument was all your fault	1	2	6	5	4	3	2	1
14.	Told you that he understood your point of view even if he disagreed with it	1	2	6	5	4	3	2	1
15.	Told or showed that he wanted you to act your age	1	2	6	5	4	3	2	1
16.	Tried to explain to you why he thinks the rules he set for you are important and should be followed	1	2	6	5	4	3	2	1
17.	Ridiculed or put you down when the two of you argued	1	2	6	5	4	3	2	1

	Has your **Father**:	Has this happened in the past month? *Yes*	*No*	How often has it happened? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
18.	Made fun of you when you did something wrong	1	2	6	5	4	3	2	1
19.	Treated you as if you were much younger than you really are	1	2	6	5	4	3	2	1
20.	Found that the way he acted toward you was strongly affected by the mood he was in	1	2	6	5	4	3	2	1
21.	Been overprotective of you	1	2	6	5	4	3	2	1
22.	Pushed you more severely than usual for misbehaviour	1	2	6	5	4	3	2	1
23.	Told you to do something "Because I said so"	1	2	6	5	4	3	2	1
24.	Tried to get you to see why something you did was wrong	1	2	6	5	4	3	2	1
25.	Asked you for your views when the two of you disagreed	1	2	6	5	4	3	2	1
26.	Been too busy to spend time with you	1	2	6	5	4	3	2	1
27.	Ignored your bid for attention or help	1	2	6	5	4	3	2	1
28.	Encouraged you to choose how to do things	1	2	6	5	4	3	2	1
29.	Been impatient with you	1	2	6	5	4	3	2	1
30.	Let you get away with bad behaviour	1	2	6	5	4	3	2	1
31.	Failed to check on you to see if you had done what you were supposed to have done	1	2	6	5	4	3	2	1
32.	Not gone through with threat of punishment to you	1	2	6	5	4	3	2	1
33.	Tried to understand how you felt about things	1	2	6	5	4	3	2	1
34.	Seen to it that you obeyed the rules	1	2	6	5	4	3	2	1
35.	Been talked into things easily by you	1	2	6	5	4	3	2	1
36.	Given you a choice of what to do	1	2	6	5	4	3	2	1
37.	Given in to you to make things easier for him	1	2	6	5	4	3	2	1
38.	Ignored it when you broke a rule that he previously set	1	2	6	5	4	3	2	1
39.	Respected your position even if he had a difference in opinion	1	2	6	5	4	3	2	1
40.	Encouraged you to be self directed -- to do homework, clean up room, etc., without being asked	1	2	6	5	4	3	2	1

	Has your **Father**:	Has this happened in the past month?		How often has it happened?					
		Yes	*No*	*More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at in the week, at lea once the la month*
41.	Encouraged you to behave independently	1	2	6	5	4	3	2	1
42.	Solicited your opinion	1	2	6	5	4	3	2	1
43.	Encouraged you to take responsibility	1	2	6	5	4	3	2	1

No matter how well your parents get on with each other, they may sometimes disagree with each other or even get into fights with each other.

11. How often are you exposed (see, hear) to disagreements or fights between your parents?

Never/hardly ever	1
Seldom	2
Sometimes	3
Often	4
Always	5

12. How often do you become involved into disagreements or fights between your parents?

Never/hardly ever	1
Seldom	2
Sometimes	3
Often	4
Always	5

Again, here are more questions about your Mother's and your Father's behaviour towards you

13. Here is a list of things your Mother might have done when the two of you had a conflict or disagreement. Has she behaved toward you in that way in the past month? If YES, how often has she done it?

	When your **Mother** disagreed or had a conflict with you, how often has she:	Has she done this in the past month? *Yes*	*No*	How often has she done it? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
1.	Argued heatedly but short of yelling/shouting	1	2	6	5	4	3	2	1
2.	Yelled/shouted and/or insulted	1	2	6	5	4	3	2	1
3.	Sulked and/or refused to talk about it	1	2	6	5	4	3	2	1
4.	Stomped out of the room	1	2	6	5	4	3	2	1
5.	Threw something (but not at you) or smashed or hit or kicked something	1	2	6	5	4	3	2	1
6.	Threatened to hit or throw something at you	1	2	6	5	4	3	2	1

14. How about your Father? Has he done any of the following in the past months?

	When your **Father** disagreed or had a conflict with you, how often has he:	Has he done this in the past month? *Yes*	*No*	How often has he done it? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
1.	Argued heatedly but short of yelling/shouting	1	2	6	5	4	3	2	1
2.	Yelled/shouted and/or insulted	1	2	6	5	4	3	2	1
3.	Sulked and/or refused to talk about it	1	2	6	5	4	3	2	1
4.	Stomped out of the room	1	2	6	5	4	3	2	1
5.	Threw something (but not at you) or smashed or hit or kicked something	1	2	6	5	4	3	2	1
6.	Threatened to hit or throw something at you	1	2	6	5	4	3	2	1

15. The following questions deal with your relationship with your Mother and your relationship with your Father. Please answer each question separately for your Mother and your Father.

		Mother					Father			
		Extremely	*Very*	*Somewhat*	*A little*	*Not at all*	*Extremely*	*Very*	*Somewhat*	*A little*
1.	How well do you get on with this person?	5	4	3	2	1	5	4	3	2
2.	How close are you to this person?	5	4	3	2	1	5	4	3	2
3.	How much do you enjoy spending time alone with this person?	5	4	3	2	1	5	4	3	2
4.	How satisfied are you with the amount of time you spend alone with this person?	5	4	3	2	1	5	4	3	2
5.	How affectionate/close are you towards/to this person?	5	4	3	2	1	5	4	3	2
6.	How much do you understand this person?	5	4	3	2	1	5	4	3	2
7.	How much do you care about what this person thinks about you?	5	4	3	2	1	5	4	3	2
8.	How much do you think you are like this person?	5	4	3	2	1	5	4	3	2
9.	How responsive are you to this person?	5	4	3	2	1	5	4	3	2
10.	How good is the communication between you and this person?	5	4	3	2	1	5	4	3	2
11.	How much do you yell/shout at this person after you've had a bad day?	5	4	3	2	1	5	4	3	2
12.	How much do you nag this person about what he or she is doing wrong?	5	4	3	2	1	5	4	3	2
13.	How much do you criticise this person?	5	4	3	2	1	5	4	3	2
14.	How often does this person get into disagreements or fights with you?	5	4	3	2	1	5	4	3	2
15.	How much do you enjoy being this person's child?	5	4	3	2	1	5	4	3	2

16. The following items deal with issues that parents and children do just to be together or to show each other affection. Has this happened with your <u>Mother</u> in the past month? If YES, how often has this occurred?

	Thinking about your **<u>Mother</u>**:	Has this happened in the past month? *Yes*	*No*	How <u>often</u> has it happened? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
1.	Spent time together	1	2	6	5	4	3	2	1
2.	Been given a hug, kiss, pat on the back or other physical sign of affection	1	2	6	5	4	3	2	1
3.	Played games, sports etc. together	1	2	6	5	4	3	2	1
4.	Talked for 10 minutes or more about your activities, school, hobbies, and common interests	1	2	6	5	4	3	2	1
5.	Visited with friends or relatives	1	2	6	5	4	3	2	1
6.	Bought or made a gift for another family member	1	2	6	5	4	3	2	1
7.	Laughed together about something	1	2	6	5	4	3	2	1
8.	Worked on school work together	1	2	6	5	4	3	2	1
9.	Told or listened to a joke	1	2	6	5	4	3	2	1
10.	Gone for a walk, bike ride, swim, picnic, fishing, jogging, exercising, to the beach, a drive, etc.	1	2	6	5	4	3	2	1
11.	Gone to or given a party together	1	2	6	5	4	3	2	1
12.	Built or made something together (e.g., made a model, cooked a meal, repaired something, etc.)	1	2	6	5	4	3	2	1
13.	Played a musical instrument, sang together or listened to music together	1	2	6	5	4	3	2	1
14.	Gone looking at rocks, flowers, shells, birds, stars, or the like	1	2	6	5	4	3	2	1
15.	Been given praise or a compliment	1	2	6	5	4	3	2	1
16.	Gone out together for something like dinner, a movie, a museum, shopping, or to get a snack such as ice cream or a coke	1	2	6	5	4	3	2	1
17.	Been given extra privileges, like later curfew or extra dessert	1	2	6	5	4	3	2	1
18.	Been given extra money or something special like an unexpected gift	1	2	6	5	4	3	2	1
19.	Told you that she loved you	1	2	6	5	4	3	2	1
20.	She has gone to see you perform or display your work or skills in a sporting event, concert, play, art show, etc.	1	2	6	5	4	3	2	1

	Thinking about your **Mother**:	Has this happened in the past month? *Yes*	*No*	How often has it happened? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not a in the week, at lea once the la month*
21.	Been talked with about something that was worrying or concerning you	1	2	6	5	4	3	2	1
22.	Participated in a hobby together (e.g., stamp collecting, model building, woodworking, sewing, needlepoint, etc.)	1	2	6	5	4	3	2	1

17. Here are some similar questions only about your Father.

	Thinking about your **Father**:	Has this happened in the past month? *Yes*	*No*	How often has it happened? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not at all in the last week, but at least once in the last month*
1.	Spent time together	1	2	6	5	4	3	2	1
2.	Been given a hug, kiss, pat on the back or other physical sign of affection	1	2	6	5	4	3	2	1
3.	Played games, sports etc together	1	2	6	5	4	3	2	1
4.	Talked for 10 minutes or more about your activities, school, hobbies, and common interests	1	2	6	5	4	3	2	1
5.	Visited with friends or relatives	1	2	6	5	4	3	2	1
6.	Bought or made a gift for another family member	1	2	6	5	4	3	2	1
7.	Laughed together about something	1	2	6	5	4	3	2	1
8.	Worked on school work together	1	2	6	5	4	3	2	1
9.	Told or listened to a joke	1	2	6	5	4	3	2	1
10.	Gone for a walk, bike ride, swim, picnic, fishing, jogging, exercising, to the beach, a drive, etc.	1	2	6	5	4	3	2	1
11.	Gone to or given a party together	1	2	6	5	4	3	2	1
12.	Built or made something together (e.g., made a model, cooked a meal, repaired something, etc.)	1	2	6	5	4	3	2	1
13.	Played a musical instrument, sang together or listened to music together	1	2	6	5	4	3	2	1
14.	Gone looking at rocks, flowers, shells, birds, stars, or the like	1	2	6	5	4	3	2	1
15.	Been given praise or a compliment	1	2	6	5	4	3	2	1
16.	Gone out together for something like dinner, a movie, a museum, shopping, or to get a snack such as ice cream or a coke	1	2	6	5	4	3	2	1
17.	Been given extra privileges, like later curfew or extra dessert	1	2	6	5	4	3	2	1
18.	Been given extra money or something special like an unexpected gift	1	2	6	5	4	3	2	1
19.	Told you that he loved you	1	2	6	5	4	3	2	1
20.	He has gone to see you perform or display your work or skills in a sporting event, concert, play, art show, etc.	1	2	6	5	4	3	2	1

	Thinking about your **Father**:	Has this happened in the past month? *Yes*	*No*	How often has it happened? *More than once a day*	*Every day*	*5 or 6 times in the last week*	*3 or 4 times in the last week*	*1 or 2 times in the last week*	*Not a in the week, at lea once the la month*
21.	Been talked with about something that was worrying or concerning you	1	2	6	5	4	3	2	1
22.	Participated in a hobby together (e.g., stamp collecting, model building, woodworking, sewing, needlepoint, etc.)	1	2	6	5	4	3	2	1

SIBLING_____

The next questions are about your relationship with your brother/sister

18. The following items deal with ways you and your brother/sister behave towards each other. Please answer the questions about your relationship with _____ (Sibling) by using the following scale. The phrase "this sibling" refers to _____.

		Hardly at all	*Not too much*	*Some-what*	*Very much*	*Extremely much*
1.	Some siblings do nice things for each other a lot, while other siblings do nice things for each other a little. How much do both you and this sibling do nice things for each other?	1	2	3	4	5
2.	Some siblings care about each other a lot, while other siblings don't care about each other that much. How much do you and this sibling care about each other?	1	2	3	4	5
3.	How much do you and this sibling go places and do things together?	1	2	3	4	5
4.	How much do you and this sibling insult and call each other names?	1	2	3	4	5
5.	How much do you and this sibling tell each other everything?	1	2	3	4	5
6.	Some siblings try to out-do or beat each other at things a lot, while other siblings try to out-do each other a little. How much do you and this sibling try to out-do each other at things?	1	2	3	4	5
7.	How much do you admire and respect this sibling?	1	2	3	4	5
8.	How much do you and this sibling disagree and quarrel with each other?	1	2	3	4	5
9.	Some siblings co-operate a lot, while other siblings co-operate a little. How much do you and this sibling co-operate with each other?	1	2	3	4	5
10.	How much do you and this sibling love each other?	1	2	3	4	5
11.	How much are you and this sibling mean to each other?	1	2	3	4	5
12.	Some siblings play around and have fun with each other a lot, while other siblings play around and have fun with each other a little. How much do you and this sibling play around and have fun with each other?	1	2	3	4	5
13.	How much do you and this sibling share secrets and private feelings?	1	2	3	4	5
14.	How much do you and this sibling compete with each other?	1	2	3	4	5
15.	How much do you look up to and feel proud of this sibling?	1	2	3	4	5
16.	How much do you and this sibling get mad at and get in arguments with each other?	1	2	3	4	5
17.	How much do both you and your sibling share with each other?	1	2	3	4	5

		Hardly at all	*Not too much*	*Some-what*	*Very much*	*Ex*
18.	How much is there a strong feeling of affection (love) between you and this sibling?	1	2	3	4	
19.	Some kids spend lots of time with their siblings, while others don't spend so much. How much free time do you and this sibling spend together?	1	2	3	4	
20.	How much do you and this sibling bug and pick at each other in mean ways?	1	2	3	4	
21.	How much do you and this sibling tell each other things you don't want other people to know?	1	2	3	4	
22.	How much do you and this sibling try to do things better than each other?	1	2	3	4	
23.	How much do you think highly of this sibling?	1	2	3	4	
24.	How much do you and this sibling argue with each other?	1	2	3	4	

19. How much time do you and _____(Sibling) spend with the same group of friends?

Never	1
Rarely	2
Sometimes	3
Often	4
Always	5

In this section the questions are about your use of tobacco, alcohol, and drugs. Let's start with your cigarette smoking

20. On how many occasions (if any) during your lifetime have you smoked cigarettes?

Never	1
Once or twice	2
3-5 times	3
6-9 times	4
10-19 times	5
20-39 times	6
40 or more times	7

21. How frequently have you smoked cigarettes during the past 30 days?

Not at all	1
Less than 1 cigarette per week	2
Less than 1 cigarette per day	3
1-5 cigarettes per day	4
6-10 cigarettes per day	5
11-20 cigarettes per day	6
More than 20 cigarettes per day	7

The following questions are about alcoholic beverages including beer, wine, and spirits

22. On how many occasions (if any) have you had any alcoholic beverage to drink?

	Number of occasions	*0*	*1-2*	*3-5*	*6-9*	*10-19*	*20-39*	*40 or more*
1.	In your lifetime	1	2	3	4	5	6	7
2.	During the last 12 months	1	2	3	4	5	6	7
3.	During the last 30 days	1	2	3	4	5	6	7

23. Think back over the LAST 30 DAYS. On how many occasion (if any) have you had any of the following to drink?

	Number of occasions	*0*	*1-2*	*3-5*	*6-9*	*10-19*	*20-39*	*40 or more*
1.	Beer (Do not include low alcohol beer), Cider	1	2	3	4	5	6	7
2.	Wine	1	2	3	4	5	6	7
3.	Spirits (whisky, brandy, gin, vodka etc. Include spirits mixed with soft drinks)	1	2	3	4	5	6	7

24. When did you last have a drink?

Within the last week	7
Within the last two weeks	6
Within the last month	5
Within the last 3 months	4
Within the last 6 months	3
Within the last 9 months	2
Within the last year	1

25. What did you drink the last time you consumed alcohol? Please write in detail?

Example: 1 single malt whiskey, 1 can of Old Peculiar, half pint of Carlsberg Special, quarter of a bottle of port

_____

_____

_____

_____

Total consumption: UNITS_____(OFFICE USE ONLY)

26. Think of the last day on which you drank alcohol. Where were you when you drank? (More than one answer is possible)

		Yes	*No*
1.	I never drink alcohol	1	2
2.	At home with parents	1	2
3.	At home without parents present	1	2
4.	At someone else's home	1	2
5.	Out on the street, in a park, beach or other open area	1	2
6.	In a bar or a pub	1	2
7.	In a disco.	1	2
8.	Other places (please describe): _____	1	2

27. Think back over the LAST 30 DAYS. How many times (if any) have you had <u>five or more</u> drinks in a row? (A drink is a glass of wine, half pint of beer, a single measure of spirits or a mixed drink).

None	1
1 time	2
2 times	3
3-5 times	4
6-9 times	5
10 or more times	6

28. **Again, think back over the LAST 30 DAYS. How many times (if any) have you had ten or more drinks in a row? (A drink is a glass of wine, half pint of beer, a single measure of spirits or a mixed drink).**

None	1
1 time	2
2 times	3
3-5 times	4
6-9 times	5
10 or more times	6

29. **On how many occasions (if any) have you been drunk from drinking alcoholic beverages?**

	Number of occasions	*0*	*1-2*	*3-5*	*6-9*	*10-19*	*20-39*	*40 or more*
1.	In your lifetime	1	2	3	4	5	6	7
2.	During the last 12 months	1	2	3	4	5	6	7
3.	During the last 30 days	1	2	3	4	5	6	7

30. **Please indicate on this scale from 1 to 10 how drunk you think you were the last time you were drunk.**

Somewhat merry only									*Heavily intoxicated, unable to stand on my feet*
1	2	3	4	5	6	7	8	9	10

I have never been drunk 11

Now the questions are mainly about drugs

31. **On how many occasions (if any) have you ever used cannabis (marijuana, hashish, blow, pot, dope, grass)?**

	Number of occasions	*0*	*1-2*	*3-5*	*6-9*	*10-19*	*20-39*	*40 or more*
1.	In your lifetime	1	2	3	4	5	6	7
2.	During the last 12 months	1	2	3	4	5	6	7
3.	During the last 30 days	1	2	3	4	5	6	7

32. On how many occasions in your lifetime (if any) have you used any of the following drugs?

	Number of occasions	*0*	*1-2*	*3-5*	*6-9*	*10-19*	*20-39*	*40*
1.	Tranquillizers or sedatives (without a doctor's prescription)	1	2	3	4	5	6	
2.	Amphetamines (pep pills, speed)	1	2	3	4	5	6	
3.	LSD or other hallucinogen	1	2	3	4	5	6	
4.	Crack	1	2	3	4	5	6	
5.	Cocaine	1	2	3	4	5	6	
6.	Heroin (smack, by smoking)	1	2	3	4	5	6	
7.	Heroin (other than by smoking)	1	2	3	4	5	6	
8.	Ecstasy (E)	1	2	3	4	5	6	
9.	Magic mushrooms	1	2	3	4	5	6	
10.	Have you injected drugs – what was it?: heroin, cocaine or amphetamine	1	2	3	4	5	6	
11.	Alcohol together with pills	1	2	3	4	5	6	
12.	Alcohol and cannabis at the same time	1	2	3	4	5	6	
13.	Sniffed alcohol	1	2	3	4	5	6	
14.	Inhalants (glue etc.)	1	2	3	4	5	6	
15.	Anabolic steroids	1	2	3	4	5	6	

33. When (if ever) did you first do each of the following things?

		Never	*Age in years*
1.	Drink beer (at least one glass)	0	
2.	Drink wine (at least one glass)	0	
3.	Drink spirits (at least one glass)	0	
4.	Get drunk on alcohol	0	
5.	Smoke your first cigarette	0	
6.	Smoke cigarettes daily	0	
7.	Try amphetamines	0	
8.	Try tranquillizers or sedatives (without a doctor's prescription)	0	
9.	Try cannabis	0	
10.	Try LSD or other hallucinogen	0	
11.	Try crack	0	
12.	Try cocaine	0	
13.	Try ecstasy	0	
14.	Try heroin	0	
15.	Try 'magic mushrooms'	0	
16.	Try inhalants (glue etc.) to get high	0	
17.	Try alcohol together with pills	0	
18.	Try anabolic steroids	0	

34. Individuals differ in whether or not they disapprove of people doing certain things. DO YOU DISAPPROVE of <u>young people</u> doing each of the following?

		Don't disapprove	*Disapprove*	*Disapprove strongly*	*Don't know*
1.	Smoking cigarettes occasionally	1	2	3	4
2.	Smoking one or more packs of cigarettes per day	1	2	3	4
3.	Drinking occasionally	1	2	3	4
4.	Having one or two drinks several times a week	1	2	3	4
5.	Getting drunk once a week	1	2	3	4
6.	Trying cannabis once or twice	1	2	3	4
7.	Smoking cannabis occasionally	1	2	3	4
8.	Smoking cannabis frequently	1	2	3	4
9.	Trying LSD or other hallucinogen once or twice	1	2	3	4
10.	Trying tranquillizers or sedatives (without a doctor's prescription) once or twice	1	2	3	4
11.	Trying amphetamines once or twice	1	2	3	4
12.	Trying cocaine or crack once or twice	1	2	3	4
13.	Trying ecstasy once or twice	1	2	3	4
14.	Trying inhalants (glue etc.) once or twice	1	2	3	4

The next question is about your friends

35. How many of your friends would you estimate ...?

		None	*A few*	*Some*	*Most*	*All*
1.	Smoke cigarettes	1	2	3	4	5
2.	Drink alcoholic beverages (beer, wine, spirits)	1	2	3	4	5
3.	Get drunk at least once a week	1	2	3	4	5
4.	Smoke cannabis	1	2	3	4	5
5.	Take LSD or other hallucinogen	1	2	3	4	5
6.	Take amphetamines	1	2	3	4	5
7.	Take tranquillizers or sedatives (without a doctor's prescription)	1	2	3	4	5
8.	Take cocaine or crack	1	2	3	4	5
9.	Take ecstasy	1	2	3	4	5
10.	Take heroin	1	2	3	4	5
11.	Take inhalants	1	2	3	4	5
12.	Take "magic mushrooms"	1	2	3	4	5
13.	Take alcohol together with pills	1	2	3	4	5
14.	Take anabolic steroids	1	2	3	4	5

The following questions are about your Mother's and your Father's use of cigarettes alcohol, and drugs

36. Are you aware that your Mother/Father smoke? If so, how often do you think they do

	Mother	Father
Never smoked/Quit	1	1
Rarely	2	2
Occasionally	3	3
At least once a week	4	4
A few times every day	5	5
A lot/many times every day	6	6

37. How often do you think your Mother/Father drink alcohol?

	Mother	Father
Never/Quit	1	1
About twice a year or less	2	2
Once every 3 or 4 months	3	3
Once a month/2 months	4	4
About once a fortnight	5	5
1-2 times a week	6	6
3-4 times a week	7	7
Almost every day	8	8

38. How often have you seen your Mother/Father being drunk?

	Mother	Father
Never	1	1
Seldom	2	2
Sometimes	3	3
Often	4	4
Most of the time	5	5

39. Do you know if your Mother/Father has ever used the following drugs?

		Mother			Father	
		Yes, she has	*No, she hasn't*	*Don't know*	*Yes, he has*	*No, he hasn't*
1.	Cannabis (marijuana, hashish, blow, pot, dope, grass)	1	2	3	1	2
2.	Other drugs than cannabis	1	2	3	1	2

40. How much do you think your Mother and Father disapprove of young people doing each of the following?

Don't disapprove 1
Disapprove 2
Disapprove strongly 3
Don't know 4

		Mother				Father			
1.	Smoking cigarettes occasionally	1	2	3	4	1	2	3	4
2.	Smoking one or more packs of cigarettes per day	1	2	3	4	1	2	3	4
3.	Drinking occasionally	1	2	3	4	1	2	3	4
4.	Having one or two drinks several times a week	1	2	3	4	1	2	3	4
5.	Getting drunk once a week	1	2	3	4	1	2	3	4
6.	Trying cannabis once or twice	1	2	3	4	1	2	3	4
7.	Smoking cannabis occasionally	1	2	3	4	1	2	3	4
8.	Smoking cannabis frequently	1	2	3	4	1	2	3	4
9.	Trying LSD or other hallucinogen once or twice	1	2	3	4	1	2	3	4
10.	Trying tranquillizers or sedatives (without a doctor's prescription) once or twice	1	2	3	4	1	2	3	4
11.	Trying amphetamines once or twice	1	2	3	4	1	2	3	4
12.	Trying cocaine or crack once or twice	1	2	3	4	1	2	3	4
13.	Trying ecstasy once or twice	1	2	3	4	1	2	3	4
14.	Trying inhalants (glue etc.) once or twice	1	2	3	4	1	2	3	4

41. Parents have attitudes and norms on how they like their children to be involved in the use of alcohol, cigarettes and drugs. How much do you agree or disagree with the following statements for your Mother and Father?

Agree strongly 1
Agree 2
Neither agree nor disagree 3
Disagree 4
Disagree strongly 5

		Mother					Father			
1.	My mother/father doesn't want me to drink alcohol.	1	2	3	4	5	1	2	3	4
2.	My mother/father prefers me to drink with them if I want to experience it than to learn about it elsewhere.	1	2	3	4	5	1	2	3	4
3.	My mother/father doesn't mind me having a drink at a family party.	1	2	3	4	5	1	2	3	4
4.	My mother/father thinks it is okay for me to experiment with alcohol (drinking occasionally, not getting drunk).	1	2	3	4	5	1	2	3	4
5.	My mother/father wants me to use alcohol carefully and not let it interfere with schoolwork.	1	2	3	4	5	1	2	3	4
6.	My mother/father doesn't mind me having a few beers at a friend's house after school.	1	2	3	4	5	1	2	3	4
7.	My mother/father doesn't mind me having a few drinks of spirits at a party at a friend's house.	1	2	3	4	5	1	2	3	4
8.	My mother/father doesn't mind me getting drunk at a family party.	1	2	3	4	5	1	2	3	4
9.	My mother/father believes it is part of growing up to get drunk when an adolescent is out with his/her friends.	1	2	3	4	5	1	2	3	4
10.	My mother/father doesn't want me to smoke cigarettes.	1	2	3	4	5	1	2	3	4
11.	My mother/father think that smoking cigarettes occasionally is okay for me.	1	2	3	4	5	1	2	3	4
12.	My mother/father doesn't want me to use cannabis.	1	2	3	4	5	1	2	3	4
13.	My mother/father doesn't mind me trying to use cannabis, but don't like me to use it frequently.	1	2	3	4	5	1	2	3	4
14.	My mother/father doesn't mind me using cannabis even frequently as long as I don't use any other drug.	1	2	3	4	5	1	2	3	4
15.	My mother/father doesn't want me to use drugs.	1	2	3	4	5	1	2	3	4

42. How do you think your Mother and your Father would react if you did the following things? Please answer separately for your Mother and your Father.

She/he would approve of it 1
She/he would not mind 2
She/he would discourage it..... 3
She/he would be angry about it 4
Don't know 5

		Mother					Father				
1.	Use tobacco	1	2	3	4	5	1	2	3	4	5
2.	Drink on special occasions/at home only	1	2	3	4	5	1	2	3	4	5
3.	Drink outside her/his supervision (in a pub/ club, on the street)	1	2	3	4	5	1	2	3	4	5
4.	Get drunk	1	2	3	4	5	1	2	3	4	5
5.	Use cannabis	1	2	3	4	5	1	2	3	4	5
6.	Use ecstasy	1	2	3	4	5	1	2	3	4	5

SIBLING_____

Here are some more questions about your Brother/Sister's use of cigarettes, alcohol, and drugs

43. Does _____ (Sibling) do any of the following things?

		Never	*Seldom*	*Sometimes*	*Often*	*Don't know*
1.	Smoke cigarettes	1	2	3	4	5
2.	Drink alcoholic beverages (beer, wine, or spirits)	1	2	3	4	5
3.	Get drunk	1	2	3	4	5
4.	Smoke cannabis	1	2	3	4	5
5.	Take tranquillizers or sedatives (without a doctor's prescription)	1	2	3	4	5
6.	Take ecstasy	1	2	3	4	5
	Take other drugs than the above, Please specify:					
7.	_____	1	2	3	4	5
8.	_____	1	2	3	4	5

44. How often (if at all) has _____ (Sibling) offered you any of the following substances?

		Never	*Once or twice*	*3-5 times*	*6-10 times*	*M 1*
1.	Cigarettes	1	2	3	4	
2.	Alcoholic beverages (beer, wine, or spirits)	1	2	3	4	
3.	Cannabis	1	2	3	4	
4.	Tranquillizers or sedatives	1	2	3	4	
5.	Ecstasy	1	2	3	4	
	Others, Please specify:					
6.	_____	1	2	3	4	
7.	_____	1	2	3	4	
8.	_____	1	2	3	4	

45. How often have you offered _____ (Sibling) any of the following?

		Never	*Once or twice*	*3-5 times*	*6-10 times*	*M 1*
1.	Cigarettes	1	2	3	4	
2.	Alcoholic beverages (beer, wine, or spirits)	1	2	3	4	
3.	Cannabis	1	2	3	4	
4.	Tranquillizers or sedatives	1	2	3	4	
5.	Ecstasy	1	2	3	4	
	Others, Please specify:					
6.	_____	1	2	3	4	
7.	_____	1	2	3	4	
8.	_____	1	2	3	4	

46. Does _____ (Sibling) disapprove of any of the following?

		Don't disapprove	*Disapprove*	*Disapprove strongly*	*Don*
1.	Smoking cigarettes occasionally	1	2	3	
2.	Smoking one or more packs of cigarettes per day	1	2	3	
3.	Drinking occasionally	1	2	3	
4.	Having one or two drinks several times a week	1	2	3	
5.	Getting drunk once a week	1	2	3	
6.	Trying cannabis once or twice	1	2	3	
7.	Smoking cannabis occasionally	1	2	3	
8.	Smoking cannabis frequently	1	2	3	
9.	Trying LSD or other hallucinogen once or twice	1	2	3	
10.	Trying tranquillizers or sedatives (without a doctor's prescription) once or twice	1	2	3	
11.	Trying amphetamines once or twice	1	2	3	
12.	Trying cocaine or crack once or twice	1	2	3	
13.	Trying ecstasy once or twice	1	2	3	
14.	Trying inhalants (glue etc.) once or twice	1	2	3	

The following questions concern behaviours which may be against some social rules or the law

47. During the last 12 months how often have you ...?

		Not at all	*Once*	*Twice*	*3-4 times*	*5 or more times*
1.	Hit one of your teachers	1	2	3	4	5
2.	Got into a fight at school	1	2	3	4	5
3.	Taken part in a fight where a group of your friends where against another group	1	2	3	4	5
4.	Hurt somebody badly enough for them to need medical help	1	2	3	4	5
5.	Used any kind of weapon to get something from somebody	1	2	3	4	5
6.	Stolen something	1	2	3	4	5
7.	Taken something from a shop without paying	1	2	3	4	5
8.	Set fire to somebody else's property on purpose	1	2	3	4	5
9.	Damaged school property on purpose	1	2	3	4	5
10.	Got into trouble with the police for something you did	1	2	3	4	5
11.	Bullied somebody	1	2	3	4	5
12.	Driven a car/motorbike after drinking	1	2	3	4	5
13.	Driven a car/motorbike after drug use	1	2	3	4	5
14.	Were you gambling	1	2	3	4	5

48. During the LAST 30 DAYS how many whole days of school have you missed?

		None	*1 day*	*2 days*	*3-4 days*	*5-6 days*	*7 days or more*
1.	Because of illness	1	2	3	4	5	6
2.	Because you skipped or 'cut'	1	2	3	4	5	6
3.	For other reasons	1	2	3	4	5	6

49. Have you ever had any of the following problems?

		Never	*Yes because of my alcohol use*	*Yes because of my drug use*	*Yes for other reasons*
1.	Problems in your relationship with your parents	1	2	3	4
2.	Trouble with the police	1	2	3	4
3.	Engaged in sex you regretted the next day	1	2	3	4
4.	Engaged in unprotected sex	1	2	3	4

Here are a few more questions about you

50. The following questions deal with your physical development.

If you are a girl

		Not yet started to develop	*Has barely started to develop*	*Development definitely underway*	*Dev co*
1.	Would you say that your growth spurt in height ("growth spurt" means more growth than usual):	1	2	3	
2.	And how about the growth of your body hair (meaning underarm and pubic hair)? Would you say that your body hair growth:	1	2	3	
3.	Have you noticed any skin changes, especially pimples?	1	2	3	
4.	Have you noticed that your breasts have begun to grow?	1	2	3	

5. Have you begun to menstruate (started your period)? No 1 Yes

If Yes, how old were you when you started to menstruate? Years ☐☐ Months ☐

If you are a boy

		Not yet started to develop	*Has barely started to develop*	*Development definitely underway*	*Dev co*
1.	Would you say that your growth spurt in height ("growth spurt" means more growth than usual):	1	2	3	
2.	And how about the growth of your body hair (meaning underarm and pubic hair)? Would you say that your body hair growth:	1	2	3	
3.	Have you noticed any skin changes, especially pimples?	1	2	3	
4.	Have you noticed a deepening of your voice?	1	2	3	
5.	Have you begun to grow hair on your face?	1	2	3	

51. Do you think your development is/was any earlier or later than most other boys/girls your age?

Much earlier	1
Somewhat earlier	2
About the same	3
Somewhat later	4
Much later	5

Just one more thing

52. Do you get pocket money or earn money?

	Yes	No
Pocket money	1	2
Earn money	1	2

53. How much money do you usually spend per week on your personal needs and where do you get it from?

	£
Paid job	_____
Parents or other relatives	_____
Other sources	_____

Thank you very much for your help. This is the end of the questionnaire, would you like to make any comments?

Guidelines for filling in the questionnaire

1. The questionnaire is confidential.

2. Please answer every question as best as you can.

3. There are three types of questions:

i Regarding questions with answering scales: please circle the number of the category that comes closest. If you circled a wrong number, make it invalid by crossing it and then circle the appropriate number. Only circle one number for each question/item unless otherwise stated.

ii To answer other questions please fill in the gap with numbers or text.

iii A third category of questions requires numbers to be written into little boxes; these are usually dates.

4. In the parents' questionnaire, *Child 1* always refers to the older child and *Child 2* always refers to the younger child who are included in this study.

5. In the teenager's questionnaire, *Sibling* always refers to your brother or sister who is also included in this study.

6. If you are uncertain how to answer a question please ask me.

Thank you very much for your participation.

APPENDIX C

FURTHER STATISTICAL ANALYSIS AND INFORMATION REGRADING MEASURES

C1 – Internal Consistency of Parent-Child Relationship Scales by Reporter

C2 – Composites of Parent-Child Warmth/Support and Conflict/Negativity

C3 – Marital Relationship

C4 – Alcohol Involvement Scale

C5 – Development of Alcohol Norms Scale

Table C1. Internal consistency (Cronbach's alpha) for individual parent-child relationship scales by reporter

Scale	Mother on		Father on		Older sib on		Younger sib on	
	OS	YS	OS	YS	Mo	Fa	Mo	Fa
Monitoring								
Monitoring	.86	.84	.88	.87	.84	.85	.84	.61
Warmth/support								
Closeness/rapport	.87	.83	.87	.86	.91	.88	.90	.61
Expression of Affection	.83	.86	.85	.83	.84	.80	.84	.86
Instrumental Affection	.67	.75	.66	.65	.72	.70	.86	.82
(Communication and reasoning)	.87	.91	.88	.84	.86	.90	.89	.91
Conflict/negativity								
Parent-Child Agreement	.88	.83	.89	.88	.86	.85	.94	.94
Punitive Discipline	.82	.79	.84	.88	.82	.82	.91	.91
Yielding to Coercion	.80	.82	.75	.81	.63	.86	.67	.62
Conflict	.82	.82	.83	.74	.80	.79	76	.70
Verbal Aggression	.62	.59	.62	.61	.68	.65	.74	.88

Note: OS … older sibling, YS … younger sibling, Mo … mother, Fa … father

C2. Composites of Parent-Child Warmth/Support and Conflict/Negativity

To confirm the two theory-based dimensions warmth and conflict in the parent-child relationship factor analysis with a set two-factor solution were computed separately for each reporter using the General Least Square method with Varimax rotation. Tables C2.1 and C2.2 present the results of these analyses: factor loadings, per cent of variance explained by each factor, χ^2-values (df), and test value (p). Due to space limitations the following abbreviations were used for the subscales:

Parent-Child Discipline Inventory: reasoning and communication (items1, 6-10, 14, 16, 24, 25, 28, 33, 34, 36, 39- 43)	*PDR*
Parent-Child Relationship: closeness/rapport (items 1-10, 15)	*CLOS*
Expression of Affection: expressive affection (items1- 4, 7, 9, 15, 17-19, 21)	*EAE*
Expression of Affection: instrumental affection (items 5, 6, 8, 10-14, 16, 20, 22)	*EAI*
Parent-Child Disagreements (items 1-38)	*PC*
Parent-Child Discipline Inventory: punitive discipline (items 2-5, 11-13, 15, 17-23, 26, 27, 29)	*PDP*
Parent-Child Discipline Inventory: yielding to coercion (items 30-32, 35, 37, 38)	*PDC*
Parent-Child Relationship: conflict (items 11-14)	*CONF*
Conflict Tactic Scale: verbal aggression (items 1-6)	*CT*

Table C2.1 shows the results from the factor analyses with the initially assessed nine variables. Since the reasoning and communication subscale could not clearly be assigned to either dimension, it was dropped. Another set of factor analyses was computed with the reduced number of scales (see Table C2.2). Findings demonstrate that a two-factor solution appropriately represents the data. Moreover, dropping one scale did not affect the factor loadings of the other scales on the dimensions.

The conflict dimension is represented as 'Factor I', the warmth dimension as 'Factor II'. Bold print stresses which subscales were aggregated to form the construct score for each dimension.

Table C2. Factor analytic results: Dimensions warmth and conflict over eight measures by reporter (General Least Square extraction method with Varimax rotation)

Scale	**Mother on**				**Father on**				**Older sib on**				**Younger sib on**			
	Older sib		*Younger sib*		*Older sib*		*Younger sib*		*Mother*		*Father*		*Mother*		*Father*	
	I	**II**	**I**	**II**	**I**	**II**	**I**	**II**	**I**	**II**	**I**	**II**	**I**	**II**	**I**	**II**
CLOS	-.35	**.55**	-.13	**.50**	-.20	**.65**	-.12	**.62**	-.33	**.67**	-.42	**.68**	-.28	**.61**	.01	**.52**
EAE	.15	**.90**	.21	**.98**	.19	**.86**	.21	**.86**	.03	**1.00**	-.07	**.86**	-.00	**.92**	.01	**.88**
EAI	.05	**.57**	.16	**.56**	.02	**.66**	.07	**.60**	.12	**.54**	.14	**.66**	.15	**.79**	.12	**.82**
PC	**.73**	.08	**.77**	.03	**.67**	.03	**.76**	.17	**.71**	-.04	**.75**	.16	**.76**	.01	**.68**	.25
PDP	**.84**	.02	**.88**	.13	**.92**	.07	**.87**	.06	**.84**	-.15	**.90**	-.12	**.99**	.02	**.99**	.14
PDC	**.54**	-.01	**.66**	.15	**.69**	.09	**.60**	.16	**.68**	.01	**.52**	-.17	**.59**	.07	**.45**	.22
CONF	**.73**	-.18	**.72**	-.01	**.64**	-.17	**.74**	-.20	**.53**	-.08	**.64**	-.12	**.51**	-.24	**.41**	-.18
CT	**.85**	.06	**.76**	.09	**.88**	-.02	**.85**	.05	**.78**	.08	**.78**	-.04	**.74**	-.04	**.76**	.07
% of variance	*36.6*	*18.4*	*37.5*	*19.6*	*38.0*	*20.5*	*37.8*	*19.8*	*33.5*	*22.2*	*35.9*	*21.4*	*35.2*	*23.7*	*30.0*	*23.4*
χ^2 (df=13)	19.40		16.69		16.47		34.93		19.32		20.86		34.50		55.01	
p	.111		.214		.225		.001		.114		.076		.001		.000	

C3. Marital Relationship

Quality of marital relationship

Principal components analysis) suggested a single factor solution for mother and a two-factor solution (Varimax rotation) for father report. Since items were developed with the aim of only one dimension, principal components analyses were computed again with the number of factors set as 'one'. This second analysis also explained a substantial proportion of variance and yielded strong factor loadings. Findings from these analyses are presented in Table C3.

Table C3. Principal Components Analysis (exploratory and confirming one dimension): Quality of marital relationship by respondent

	Exploratory			**Single factor**	
Item	**Mother**	**Father**		**Mother**	**Father**
		F1	**F2**		
Happy in relationship	.82	**.92**	.10	.82	.80
Arguments unrelated to child-rearing issues	.65	.10	**.87**	.65	.60
Serious rows	.83	.09	**.87**	.83	.60
Satisfaction with marriage	.82	**.92**	.10	.82	.80
% of variance	*61.1*	*43.2*	*38.4*	*61.1*	*49.8*

Note: F … factor

C4. Alcohol Involvement Scale

Exploratory factor analysis (principal components method) was computed over all siblings in the double-entry file resulting in a single factor solution. Factor analyses were rerun separately for each sibling to confirm the single dimension. Results are presented in Table C4.

Table C4. Principal Components Analysis (exploratory and confirming one dimension): Alcohol Involvement Scale

	Exploratory	**Single factor**	
	Double-entry file	**Older sib**	**Younger sib**
Frequency: lifetime	.87	.86	.81
Frequency: past12 months	.92	.92	.85
Frequency: last 30 days	.88	.83	.73
5 or more drinks	.81	.77	.49
Drunkenness: lifetime	.88	.84	.74
Drunkenness: past 12 months	.86	.80	.75
Peers: drink alcohol	.79	.59	.69
Peers: drunk at least once a week	.68	.38	.56
% of variance	*70.2*	*58.7*	*50.6*

C5. Development of Alcohol Norms Scale

In assessing the factor structure of the substance use items, correlational analysis was computed to test for relationships between items in the multiple-entry file (see Table C5.1). Items 2, 10, 12, and 15 had several non-significant relationships. Principal Components analysis with Varimax rotation was computed resulting in a four-factor solution, with one factor consisting of items 10, 12, and 15 (see Table C5.2). Items 2, 10, 12, and 15 were excluded from the analysis. Another Principal Components analysis with Varimax rotation explored the factor structure in the 11 remaining items. Three components were identified: 'socially acceptable drinking' (Factor 1), 'heavy drinking' (Factor 2), and 'tobacco and cannabis use' (Factor 3). A test of internal consistency over the 11 items revealed that the Cronbach's alpha over the eight items could be improved from .68 to .78 by excluding item 1.

A further exploratory analysis focused only the seven remaining items on alcohol use norms, confirming the two alcohol factors. Since it was not attempted to find different subscales, rather to identify one underlying dimension, an analysis was computed with the number of factors set 'one'. All factor analytic results from the multiple-entry file are shown in Table C5.2.

After the factor structure was identified in the multiple-entry file, the eight individual reports were investigated whether they confirmed the overall findings. Exploratory results are presented in Table C5.3 and those confirming the single factor solution in Table C5.4.

Table C5.1. Pearson correlations of initial 15 substance use norm items in multiple-entry file

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2	-.04													
3	-.42***	.24***												
4	-.45***	.08*	.59***											
5	-.28***	.27***	.42***	.45***										
6	-.25***	-.18***	.24***	.39***	.15***									
7	-.27***	-.24***	.28***	.41***	.17***	.53***								
8	-.15***	-.22***	.16***	.27***	.07*	.48***	.56***							
9	-.32***	-.03	.24***	.38***	.19***	.28***	.31***	.36***						
10	.07*	.14***	-.02	-.04	.05	-.19***	-.19***	-.21***	-.10**					
11	-.06*	-.02	.10**	.14***	.06*	.18***	.19***	.23***	.16***	-.10**				
12	.22***	.12***	-.10**	-.17***	-.04	-.26***	-.09**	-.21***	-.23***	.35***	-.13***			
13	-.24***	-.01	.27***	.31***	.18***	.30***	.15***	.17***	.31***	-.07*	.30***	-.41***		
14	-.18***	-.02	.16***	.20***	.09**	.28***	.19***	.16***	.19***	-.10**	.29***	-.30***	.67***	
15	.06*	.10**	-.00	-.04	.09**	-.14***	-.05	-.16***	-.08**	.29***	-.14***	.43***	-.13***	-.12***

* p=.05, ** p=.01, *** p=.001

Table C5.2. Principal Components Analyses (PC): Factor loadings and explained variance for substance use items in multiple-entry file

Item	Exploratory PC over 15 items				Exploratory PC over 11 items			Exploratory PC over 7 alcohol norm items		Single factor for 7 alcohol norm items
	F1	F2	F3	F4	F1	F2	F3	F1	F2	
1	**-.63**	.17	.06	.18	**-.66**	-.18	-.10	*excluded*		
2	.46	**-.54**	-.01	.13	*excluded*					
3	**.79**	.09	.09	-.00	**.79**	.12	.09	.16	**.81**	.64
4	**.75**	.32	.13	-.02	**.76**	.33	.12	.38	**.76**	.77
5	**.72**	-.02	.05	.12	**.72**	-.02	.02	-.00	**.79**	.50
6	.24	**.66**	.24	-.14	.19	**.71**	.23	**.76**	.16	.69
7	.25	**.81**	.06	.01	.22	**.81**	.04	**.80**	.18	.74
8	.09	**.77**	.12	-.14	.01	**.84**	.10	**.84**	-.02	.64
9	.38	.38	.22	-.12	.35	**.44**	.22	**.51**	.31	.59
10	.02	-.23	.06	**.68**	*Excluded*					
11	-.01	.21	**.56**	-.00	-.04	.25	**.54**	*excluded*		
12	-.13	.05	.33	**.75**	*excluded*					
13	.24	.05	**.84**	-.16	.26	.06	**.85**	*excluded*		
14	.09	.07	**.85**	-.09	.10	.08	**.87**	*excluded*		
15	.03	-.02	-.07	**.77**	*excluded*					
%	*17.8*	*15.8*	*13.4*	*11.8*	*22.0*	*20.7*	*17.4*	*33.5*	*28.6*	*43.1*

Note: FA … factor analysis, F … factor, factor loadings in bold font to stress relation to factor

Table C5.3. Principal Component Analyses (Varimax rotation) over seven alcohol norm items by reporter

Item	Mo-OS			Mo-YS		Fa-OS		Fa-YS		OS-Mo		OS-Fa		YS-Mo		YS-Fa	
	F1	F2	F3	F1	F2	F1	F2	F1	F2	F1	F2	F1	F2	F1	F2	F1	F2
3	**.81**	.05	.17	**.77**	.26	**.81**	.07	**.79**	.20	.10	**.68**	.14	**.73**	.14	**.83**	.14	**.82**
4	**.77**	.15	.30	**.63**	.55	**.76**	.24	**.78**	.36	.35	**.79**	.40	**.77**	.49	**.63**	.48	**.67**
5	**.82**	.09	-.16	**.71**	.06	**.72**	.12	**.72**	-.10	-.01	**.80**	-.01	**.83**	.06	**.83**	.06	**.82**
6	.09	**.81**	.16	-.08	**.74**	.47	**.48**	.42	**.56**	**.74**	.08	**.76**	.04	**.83**	.16	**.77**	.16
7	.38	**.67**	-.23	.26	**.64**	.25	**.81**	.31	**.70**	**.64**	.29	**.66**	.27	**.85**	.14	**.84**	.18
8	-.03	**.83**	.10	.09	**.71**	-.05	**.88**	-.00	**.75**	**.78**	-.04	**.80**	.05	**.87**	.09	**.87**	.06
9	.14	.09	**.94**	**.56**	-.01	.22	**.59**	.02	**.63**	**.76**	.20	**.76**	.21	**.73**	.25	**.72**	.24
%	*29.8*	*26.2*	*16.0*	*27.2*	*26.0*	*29.9*	*29.7*	*29.0*	*27.7*	*32.3*	*26.6*	*34.3*	*27.7*	*42.5*	*27.1*	*40.4*	*27.2*

Note: Mo … mother, Fa … father, OS … older sibling, YS … younger sibling, F … factor, % … % of variance explained by factor
Factor loadings in bold font to stress relation to factor

Table C5.4. Principal Component Analyses: Single factor solution for each report of alcohol norms - Factor loadings and explained variance

Item	**Mo-OS**	**Mo-YS**	**Fa-OS**	**Fa-YS**	**OS-Mo**	**OS-Fa**	**YS-Mo**	**YS-Fa**
3	.63	.67	.53	.64	.39	.46	.45	.46
4	.71	.87	.63	.81	.69	.73	.67	.70
5	.57	.40	.50	.36	.38	.40	.38	.40
6	.46	.34	.59	.60	.55	.55	.77	.68
7	.53	.50	.70	.61	.61	.61	.78	.79
8	.36	.41	.50	.40	.50	.59	.77	.73
9	.28	.30	.48	.34	.67	.67	.70	.68
% of variance	*27.6*	*28.5*	*32.2*	*31.6*	*30.5*	*34.2*	*43.8*	*41.7*
Cronbach's alpha	*.69*	*.67*	*.70*	*.70*	*.75*	*.78*	*.79*	*.78*

Note: Mo … mother, Fa … father, OS … older sibling, YS … younger sibling
Factor loadings in bold font to stress relation to factor